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Beyond the Reality of Injury and Statistical Death: An Internship Experience in Forensic Economics

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BEYOND THE REALITY OF INJURY AND STATISTICAL DEATH: AN INTERNSHIP EXPERIENCE IN FORENSIC ECONOMICS

An internship report submitted in partial fulfillment of the requirements for the degree of Master of Science in Social and Applied Economics

By

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I HEREBY RECOOMEND THAT THE INTERNSHIP REPORT PREPARED UNDER MY SUPERVISION BY Henrietta Irányi ENTITLED Beyond the Reality of Injury and Statistical Death: An Internship Experience in Forensic Economics BE ACCEPTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF Master of Science in Social and Applied Economics.

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ABSTRACT

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Day after day, people get terminated, injured, or even killed. In forensic economics, more specifically, in personal injury and wrongful death litigation, the injured party is often allowed to receive compensation for the economic losses suffered. It is the job of an economic expert to evaluate the damages in the different personal injury and wrongful death cases. The following report demonstrates three different situations when economic damage evaluation would be performed by an expert. Two of the cases evaluate lost earnings (including fringe benefits) and lost support to the injured person and/or the immediate surviving family members. The third case evaluates the cost of a life care plan produced by a life care planner resulting from injuries suffered by a person. In addition to the numeric evaluations and narratives of the three different cases, the report also includes a review of past literature about a highly controversial issue in personal injury and wrongful death litigation, the net discount rate.

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I. INTRODUCTION AND BACKGROUND

I spent my internship at *Renas & Associates*, an economic consulting firm. The purpose of my internship was to obtain more detailed insight into the methods of forensic economics. (Some insight I have already gained while taking the course entitled "Cost-Benefit Analysis"). More specifically, I wished to learn about the techniques used in the evaluation of economic damages suffered by parties involved in personal injury and wrongful death cases. In litigation, personal injury is considered a tort and the law in most cases allows the injured party to receive compensation for the suffered economic damages. The economic damages in personal injury cases may entail loss of earnings and fringe benefits, of other income, and of household services, or incremental medical costs. The kinds of personal injuries, for the most part, include bodily injury, wrongful termination, medical malpractice, and discrimination. Wrongful death cases are also examples of personal injury litigation. The term wrongful death implies that a person is killed due to the negligence or misconduct of another person or entity. When a person is killed, the claims for economic damages under Ohio law are those suffered by specified (by statue) survivors (Find Law Website).

How exactly does the economic expert enter the picture and what is his/her duty in personal injury and wrongful death litigation? An expert witness assists the litigation process by determining the value of the economic damages and, if necessary, testifying in court (AICPA Website). More specifically, the expert witness is retained by the

Attorney of either the plaintiff or the defendant in a personal injury or wrongful death case. When the economic expert (or expert witness) is hired by the plaintiff attorney, his/her duty is to evaluate the loss of earning capacity, loss of support, loss of household services, cost of life care plan, or any combination of the above. Once it is clear that the expert is not involved in a conflict, the expert requests information about the injured party with respect to his/her demographics, earnings history, etc. When all of the requested information is provided by the injured party's attorney, the economic expert performs calculations and produces a numeric evaluation of the losses combined with a narrative explaining the calculations. (In situations, when some information requested by the expert is not available, national average data can be utilized in the calculations).

The initial calculations and the narrative may be provided to the other party's attorney and may be critiqued by the other side's expert. Based upon newly discovered information, subsequent reports may need to be produced. Once the final report is prepared, the job of the expert witness is generally complete, as most cases – about 90 percent – settle. In the remaining ten percent of the times, the cases do not settle and the parties go to trial. If that is the case, the expert witness testifies in court.

The above mentioned process generally applies to an expert who is hired by the plaintiff attorney. Those experts that are retained by the defense are generally not asked to write reports. When experts are hired by the defense, their duty is mainly to critique the calculations, assumptions, and methods employed by the plaintiff's expert and then to provide a summary of that critique to the defense attorney who can use it in his/her cross-examination.

In what follows next are two main sections of my internship report. In the first section, I chose to include a literature review about a topic that is subject to controversy in the process of economic evaluations of personal injury and wrongful death cases, the net discount rate. This section is then followed by the evaluations of three different economic loss reports that I have created during my internship. The first case assumes that a person suffered an injury and subsequently died from his injuries. This evaluation estimates the person's loss of support to the surviving family and also the loss of household services suffered by the surviving family. The second case evaluates the loss of earning capacity in a personal injury case. However, it is different from the first case in that it utilizes a method called LPE or the probability of living (L), participating in the work force (P), and of being employed (E). The third case then demonstrates the evaluation of a life care plan. The calculations for each of the cases are followed by a narrative pertaining to the individual cases and explaining the methods, assumptions, and data sources on which the numeric evaluations are based.

II. REVIEW OF PAST LITERATURE

The Total Offset Method

When projecting economic losses, it is common for forensic economists to use real (inflation-adjusted) growth parameters. The practice of growing future compensations (wages and fringe benefits) at a real growth rate and discounting these future expected cash flows by the application of a real discount rate, is attractive since it does not require economists to forecast inflation (Gamber and Sorensen, 1993). And, while the vast majority of experts apply a real discount rate that exceeds the real growth rate, a very small percentage (often not economists) use the total or pure offset approach.

The term total offset refers to the assumption that two different variables, one that generally increases damages, such as the growth rate, and one that tends to reduce the damages, like the discount rate, can be eliminated from economic damage calculations by assuming that the two completely offset one another (Ireland, 2000[b]). More specifically, the total offset method refers to the practice of equating the real growth rate of earnings and fringe benefits to the real discount rate deduced from interest rates, thereby implying a total offset or a net discount rate of zero percent. The total offset method requires neither the growth of earnings and other forms of compensation, nor the discounting of future values to the present. While the total offset method is easy to implement, most economists strongly argue against its use on grounds of inaccuracy.

In order to evaluate the validity of the total offset method, Payne *et al.* built different regression models and tested the underlying assumptions of the method. There are five assumptions underlying the total offset method; they are the following.

1. Real earnings growth and real interest rates are stable. Stability is obtained when the respective averages remain unchanged over time.
2. The average real earnings growth is approximately equal to the average real interest rate so that, over time, they are offsetting.
3. While real earnings growth and interest rates may vary from their average, they will vary by approximately the same amount.
4. The average real earnings growth can be used regardless of age, race, sex, education, occupation, industry, or region of the individual.
5. Thus, in light of the above assumptions, the total offset method requires that the net discount ratio in real terms – ($d_{real} - g_{real}$) – equals zero (Payne, *et al.*, 2001). And therefore, under these assumptions, no growing and no discounting of future expected cash flows occur.

In testing the validity of the first two assumptions[i], Payne, *et al.* rejected the null hypothesis that real growth in earnings and fringes and real interest rates on Treasury securities are equal, and concluded that the first two assumptions underlying the total offset method were not supported by empirical evidence; that is, by the data. Payne, *et al.* also tested the validity of assumptions 3 and 5, and, upon the results of their empirical studies, refuted them (2001). While assumption 4 was not tested by Payne, *et al.*, common sense dictates that such assumption is highly unrealistic. In my numeric

calculations that follow, I used different growth rates for different products and services. (For earnings and fringes, I used a real growth rate of 0.75 percent; the rationale for this is explained under the section called "Rationale for the Net Discount Rate Employed in the Internship Report." Growth rates of 0.50 percent, 1.50 percent, and 2.25 percent were used for the replacement costs of household services, medical commodities, and medical services. These figures are based on historical growth rates for the individual products and services and on an assessment of future rates). The different growth rates categorized by industries are provided by governmental agencies and demonstrate that earnings growth rates differ at least across different occupations and industries.

Thus, Payne, *et al.* demonstrated that while the total offset method is easy to implement and interpret, its foundation and underlying assumptions are not supported by data. Therefore, Payne, *et al.* concludes that the use of total offset method for calculating economic damages in personal injury and wrongful death cases is invalid. Earlier researches in the 1970s and 80s, such as McConnico (1975), Franz (1978), and Schilling (1985), provided some reasoning in favor of the use of the total offset method in economic damage calculations. However, since the 1990s, there has been a movement among economists and other practitioners away from the total offset method (Payne, *et al.*, 2001). Indeed, as we will see later, there have been structural shifts in the economy in the 1980s that required this change.

The opponents of the total offset method have tried numerous (some more complex than others) ways to test the method; this resulted in the disproof of the

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[i] For more details about the different hypotheses, data, and models employed to refute the assumptions underlying the total offset method, refer to the article titled "Total Offset Method: Is it Appropriate? Evidence from ECI Data" by Payne, Ewing, and Piette.

underlying assumptions of the total offset method. Perhaps, the easiest way to prove that using a net discount rate of zero percent is invalid is by looking at he following table.

Table 1 – Average Real Net Discount Rates[ii]

Year	3-Month T-Bill	3-Yr. T-Bond	10-Yr. T-Bond	30-Yr. T-Bond
5-Yr. Avg.	1.01%	1.60%	1.88%	2.23%
10-Yr. Avg.	1.04%	2.03%	2.64%	3.05%
15-Yr. Avg.	1.47%	2.54%	3.07%	3.41%
20-Yr. Avg.	2.00%	3.28%	3.82%	4.08%

What one should notice from the table is that a net discount rate of zero percent is simply not found in any time period. Even the lowest net discount rate – which is based on the five-year (1997-2001) average interest rate on a 3-Month Treasury Bill of 2.30 percent (see Appendix 1) and on the five-year average growth rate based on the real percentage change in the Employment Cost Index (ECI) of 1.30 percent (see Appendix 2) – is more than zero percent; it is in fact 1.01 percent. The information displayed in the table shows no empirical evidence for total offsetting between the real growth rate of compensations (measured by the real percentage change in the ECI) and the real discount rate (measured by real interest rates on Treasury securities).

My intention was to show that not much evidence supports the total offset method; and therefore, today most forensic economists do not advocate the total offset method. Rather, they prefer to use a growth rate in order to grow future expected cash flows and utilize some discount rate to diminish future expected cash flows to present value in order to account for interest that can be earned on a judgment. Today, there is a general consensus among economists that a net discount rate greater than zero is the "correct" figure to be applied in damage calculations (Payne, *et al.*, 2001). Exceptions to

[ii] The calculation of the NDRs are based on the following formula $[(1 + d) / (1 + g)] - 1$. The real average growth and discount rates used in the calculations are displayed in Appendices 1 and 2, in the tables labeled "Calculation of the Real Growth Rate" and "Calculation of the Real Discount Rate."

this general consensus usually occur when non-economists perform the economic evaluations.

While consensus that the discount rate should exceed the growth rate exists, hence creating an NDR (net discount rate) that is greater than zero, there is still a wide range of both growth rates and discount rates that are utilized in the determination of the NDR. The wide range of growth and discount rates attribute to the wide range of NDRs employed by practitioners in the field of forensic economics. This creates another issue that is subject to scrutiny; however, it is not discussed here.

In the following sections, I would like to introduce some of the suggestions that have been made about the appropriate growth and discount rates that should be used to determine the NDR employed in damage calculations. In concluding the literature review portion of my internship report, I would also like to introduce the rationale for the growth and discount rates that I believe to be appropriate.

The Appropriate Net Discount Rate

Forensic economist who determine damages in personal injury and wrongful death cases sometimes disagree about the appropriateness of the different net discount rates that are used to reduce future losses to their present values. Some practitioners prefer to base the determination of the NDR on the yield on short-term Treasury securities, while others favor long-term Treasury bond rates. Yet others advocate blended rates (Ireland, 2000[a]). Ireland's study produced a set of net discount rates that ranged from 1.10 percent to 5.70 percent (2000[a]). Notwithstanding, Ireland disclosed that he has in practice seen the use of net discount rates outside the range of his study.

In their 1993 survey (which has since been updated) of the methods used by forensic economists, Brookshire and Slesnick stated that economist, despite the wide range of net discount rates used in calculating damages, prefer to use NDRs in the range of zero to two percent. Using such low net discount rates is considered to be an application of the so-called minimalist approach. (The minimalist approach in economic damage calculations refers to the utilization of a NDR between zero to two percent. The most extreme minimalist approach is the total offset method (Sen, *et al.*, 2000)).

In a more recent survey of methodologies in 1999, Brookshire and Slesnick found that the average net discount rate of 1.50 to 2.50 percent is favored by most, more than 50 percent of, economists and that less than six percent (5.42 percent) of respondents used a net discount rate of less then 0.50 percent (1999). The problem that arises when low discount rates are applied to damage calculations is that they tend to overestimate the future loss estimates; and hence, favor the plaintiff. (It is important to understand that while higher growth rates applied to compensations magnify the losses, higher discount rates applied to earnings and fringe benefits lower the losses). Johnson and Gelles, among others, are critical of the minimalist approach as it distorts the net discount rate; they pose the argument that producing such low discount rates involves actions, such as limiting the data sets and the depth of the analysis, and disregarding structural changes in the macroeconomic environment that occurred after 1979 (Johnson and Gelles, 1996 and Sen, *et al.*, 2000).

According to Johnson and Gelles's study, those economists who use minimal net discount rates justify their choices by citing long-period NDRs resulting from taking the average annual interest rate on long-term Treasury securities starting in 1953 and

subtracting from them the percentage change in the total private nonagricultural hourly wages for the same time period. Thus, the long period, that is between 1953 and 1995, mean net discount rate using a 10-year Treasury bond is 1.983 percent. Among the minimalist approaches to discounting, the most extreme one is the above already introduced pure or total offset method. Those who prefer the zero net discount rate justify their parameter choices by citing long-period NDRs resulting from taking the average annual yield on short-term Treasury securities starting in 1948 and subtracting from them the percentage change in the total private nonagricultural hourly wages for the same time period. The resulting long-period – 1948 through 1995 – mean net discount rate using a 90-day Treasury security is 0.106 percent (Johnson and Gelles, 1996).

The problem with a narrow focus on long period mean NDRs is that they do not allow for taking risk into consideration. According to Johnson and Gelles, extending the statistical examination of net discount rates to include some risk measures, for which the need arises from the use of long-period data sets, such as the standard deviation and the coefficient of variation, would depict a different picture about the minimalist approach for discounting purposes. The mean net discount rate using a 10-year Treasury bond over the period of 1948-95 is 1.983; however, the standard deviation is 2.878. This means that 68.26 percent of the times, the mean net discount rate would be between –0.895 and 4.861 percent, and 99.74[iii] percent of the times, the mean NDR would be between –6.651 and 10.617 percent. When risk is taken into account, allowing for a more thorough statistical analysis, the representativeness of the mean net discount rate based upon long-

[iii] The probability ranges for a normal distribution were taken from the 8th edition (1998) of "Fundamentals of Financial Management" textbook by Eugene F. Brighman and Joel F. Houston; published by The Dryden Press.

period data is questionable (Johnson and Gelles, 1996). The above mentioned statistics created by Johnson and Gelles are summarized in the following table.

Table 2 – Mean Net Discount Rates and Corresponding Standard Deviations

Years	Mean Net Discount Rate	Standard Deviation
1948 - 1995		
90-Day	0.106	2.995
3-Year	1.657	2.752
10-Year	1.983	2.878
1948 - 1966		
90-Day	-1.985	2.311
3-Year	-0.286	1.337
10-Year	-0.092	1.309
1980 - 1995		
90-Day	3.387	1.452
3-Year	4.751	1.638
10-Year	5.316	1.545
1986 - 1995		
90-Day	2.637	1.221
3-Year	3.921	1.032
10-Year	4.661	0.828

Source: Johnson and Gelles, 1996.

Consequently, Johnson and Gelles, and other critics of low net discount rates, disagree with the utilization of the minimalist approach to discounting future values to the present in personal injury and wrongful death cases. They argue that the low NDRs can only be generated if the discount rates are based on average yields of Treasury securities over several centuries. Proponents of Johnson and Gelles's view provide evidence against the total offset method and call for the utilization of mean net discount rates based on the post-1979 period (Sen, *et al.*, 2000)

Johnson and Gelles are not alone in questioning the effectiveness of the long-term mean net discount rate; among these are Nowak (1991), Haydon and Webb(1992), Gamber and Sorensen (1993), etc. Nowak, for example, contended that "basing future damage awards on labor conditions and financial market conditions that existed in the 1950's, 1960's and 1970's, does not serve the purpose of restoring plaintiff to his/her

previous condition at the lowest socially desirable cost" (cited in Johnson and Gelles, 1996, pg. 125). The reason earlier years' earnings growth is not very useful in the determination of NDRs is that some structural changes occurred during those periods; for example, the slowdown in wage growth during the 1980s, which resulted from the shift in the U.S. production base away from manufacturing to services. Additionally, another structural change occurred when the federal debt increased during the 1980s and affected the interest rates; and hence, the discount rates. Johnson and Gelles contend that structural changes should be considered when NDRs are set because they alter the relationship between the earnings growth and interest rates; the two determinants of the net discount rate (1996).

Once Johnson and Gelles considered some of the main structural changes in their data set, they concluded that the last major change occurred in the 1980s; thus, the mean net discount rate calculated over the period of 1985[iv] through 1995 would be more relevant than any other longer-time discount rate. The authors also saw a trend where the net discount rate – regardless of which security it was based on – has slowly increased until the 1970s then rapidly increased during the '80s. Since the 1980s, the NDR has been slowly declining. Thus, the historical mean discount rate calculated over the period of 1948 through 1995 has been affected by the net discount rates that prevailed, and no longer exist, in the 1950s, '60s, and '70s (Johnson and Gelles, 1996). Clearly, Johnson and Gelles contend that the minimalist approach of discounting future values at zero to two percent involves the manipulation of data set and limited statistical analysis to favor the plaintiff whose losses suffered due to a personal injury or wrongful death are

consequently overestimated. Based on Johnson and Gelles's study, the mean net discount rates between 1986 and 1995 are 2.637 and 4.661 for the 90-day Treasury security and the 10-year Treasury bond. Taking into consideration major structural changes and accounting for only more recent historical data allowed for the generation of more accurate net discount rates with lower measures of risk (Johnson and Gelles, 1996). The lower risk measures of standard deviation and coefficient of variation imply less volatility; and hence, a better forecasting tool.

Upon determining that the mean net discount rate that is based on the period between 1986 and 1995 is the best forecasting tool, Johnson and Gelles went one step further and concluded that among the different kinds of Treasury securities, the one that is the most relevant in the determination of the net discount rate is the 10-year Treasury bond. Johnson and Gelles's reasoning was that the yield curve is upward sloping over time and flattens out at around year 10, and that forensic economists have a natural tendency to cover the losses suffered by the plaintiff over an extended period of future time. Thus, the two authors conclude that the best net discount rate to be utilized in the determination of economic damages in personal injury or wrongful death cases should be the mean 10-year Treasury bond rate calculated over the period of 1986 through 1995. (While today this time period is less meaningful, the authors' conclusion that a period of the most recent ten years should be considered is still relevant). This is the net discount rate that – compared to the net discount rate used by minimalists – is based on shorter period historical data, does not assume continued portfolio rollover to capture short-term

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[iv] Though Johnson and Gelles recognize that the last major structural change occurred in the early 1980s, 1985 is the recommended starting data for the period to be analyzed as the early 1980s experienced unusually high interest rates (1996).

movements in interest rates, and does not ignore structural changes that have occurred in the macroeconomic environment (1996).

The study conducted by Sen, Gelles, and Johnson in 2000, also supports that that the period to be analyzed should be the most recent 10 years and the yield to be used in the determination of net discount rate should be the 10-year Treasury bond yield. The authors formed their conclusion on the Perron's method for testing for non-stationarity in the net discount rate series, which allows for a single shift in the mean and does not require the pre-specification of a break-date in the series. This model allowed the authors to identify the period during which a change took place; it was the third quarter of 1978. While the model was powerful in justifying structural changes, it did not allow for preventing the presence of more than a single break in the series. Therefore, the mean net discount rate based on a 10-year period is the one that these authors also recommend (Sen, *et al.*, 2000).

Horvath and Sattler, in their comment to Sen, Johnson, and Gelles's work, agree with the findings and reasoning of the critiqued authors. Namely, Horvath and Sattler agree that the structural changes that occurred in the 1980s warrant the consideration of time periods after 1980 in the determination of the net discount rate. In addition, the two authors acknowledge that the minimalist approach, particularly, the total offset approach, is based on a set of parameters that prevailed between 1953 and 1995; and therefore, are based on parameters that no longer exist. While the two agree that Johnson and Gelles's argument is valid, they are critical of the tests – more specifically, of the graphical representation of the historical trend and the utilization of the different risk measures – on which the Sen, *et al.* formulated their conclusions (Horvath and Sattler, 1997).

Horvath and Sattler then provided what was an extension to Johnson and Gelles's study; they used econometric models in order to demonstrate that time and structural changes are reliable bases for the explanation of net discount rates. The model regressed the net discount rate of the different securities against time and the dummy variable (representing structural changes and having a value of zero for periods including and preceding 1980, and a value of one for periods after 1980). The model generated significant parameter estimates at the 97.50 percent level of confidence, proving that structural changes should be considered in the setting of the NDRs (1997).

In addition to proving that Johnson and Gelles were right in their claim that a structural change happened prior to the 1980s, which increased the net discount rate, Horvath and Sattler also were able to provide evidence for structural changes that occurred after the 1980s. The findings of additional structural changes provide another argument in favor of Johnson and Gelles's recommendation of using data for the most recent ten-year period and against the total offset approach to discounting future values in the damage determination of personal injury and wrongful death cases (Horvath and Sattler, 1997 and Sen, *et al.*, 2000).

Rationale for the Net Discount Rate Employed in the Internship Report

As seen above, there is not much literature available in order to defend the pure offset method that utilizes a net discount rate of zero percent. A net discount rate close to zero percent is not widely used anymore; most economists use a real discount rate that exceeds the real growth rate. The above review hoped to reveal that more recent studies about the NDR provide evidence – based on the arguments about structural changes after

the 1980s – against the appropriateness of the total offset method and call for the utilization of an NDR of more than zero percent. This is the method that I followed in my report and the one that Dr. Renas also follows. In particular, Dr. Renas uses a real discount rate of 2.50 percent and a real growth rate of 0.75 percent for earnings and fringe benefits.

The real discount rate is based on a blended interest rate on 3-Month Treasury Bills and 3-Year Treasury Notes[v]. For the ten-year period between 1992 and 2001, the average real interest rate was 1.90 percent and 2.90 percent for the 3-Month T-Bills and the 3-Year Treasury Bonds[vi]. The average of these two figures is 2.40 percent. Based on his experience, Dr. Renas set the real discount rate at 2.50 percent, one-tenth of a percent higher than 2.40 percent. The real growth rate can be based upon the average percentage change in the employment cost index (ECI) for the ten-year period between 1992 and 2001. (The ECI, stated by Payne, *et al.*, is a cost index for wages and salaries (total compensation) of all private sector workers. ECI was developed as a comprehensive indicator of the changes in the employer's labor costs that are not influenced by employment shifts across occupations (2001). The ECI can be used to determine the real rates of earnings growth).

The percentage change in the ECI for the ten-year period is 3.50 percent, which represents a nominal growth rate; this is adjusted for the ten-year mean inflation rate of 2.70 percent in order to determine the real percentage change in the ECI, or the real

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[v] Dr. Renas prefers to establish the discount rate based on short- and intermediate-term securities in order to avoid problems arising from interest rate risk associated with long-term bonds.

[vi] The average real interest rate is estimated by taking the average nominal interest rate on a Treasury security and subtracting from it the average annual inflation. (The real interest rate is the nominal less the expected interest rate. The average rate is a good proxy for the expected inflation rate). The annual figures for interest rates and inflation are based on the *Economic Report of the President*, Tables B-63 and B-73. For more detailed calculations, refer to Appendix 1.

growth rate[vii]. The difference between the nominal growth rate and the inflation rate gives a real growth rate of 0.80 percent. Dr. Renas generally uses a real growth rate of 0.75 percent. With a real discount rate of 2.50 percent and a real growth rate of 0.75 percent, Dr. Renas and I, use an NDR of approximately 1.75 percent.

[vii] The percentage change in ECI and inflation figures are based on the *Economic Report of the President*, Tables B-48 and B-63. For more detail about the calculations of the real growth rate, refer to Appendix 2.

III. CASES

During the course of my internship, I learned the process that economic experts take in their evaluation of the different cases. While I was never actually involved in the creation of the economic loss reports produced for the clients of *Renas & Associates*, I have studied numerous cases which allowed me to master the techniques of economic evaluations, and to later build my own reports. (From now on, the term report refers to the numeric evaluations of the different economic damages combined with narratives, as if it were created for real-life situations). The following evaluations and corresponding narratives are based on actual reports I have studied; nevertheless, they are built on fictitious names and figures. I chose to produce fictitious reports for my internship report in order to demonstrate the skills and knowledge I have acquired during the course of my internship. The reason for choosing the following three cases (evaluation of loss of support in a wrongful death case, loss of earnings in a personal injury case using LPE, and evaluation of a life care plan) for my internship report was that, in general, these are the most common cases for which economic experts are hired to perform economic evaluations. Other cases with which economic experts may be involved include the evaluation of the cost of raising a child or, very occasionally, the loss of perspective inheritance.

Wrongful Death Case

General Information

Matthew Fischer was born on February 8, 1976. Mr. Fischer lived in Dayton, Ohio with his wife, Amy Fischer (DOB April 7, 1977), and son, Larry Fischer (DOB June 22, 1998). On October 25, 2001, Mr. Fischer was involved in a motor cycle accident; leaving him unable to perform his job and fulfill his duty as a parent/husband. At the time of the accident, Mr. Fischer had been working as a press operator at Printline, Inc. He was hired by Printline, Inc. on February 1, 1997 and worked 42.5 hours a week until his accident on October 25, 2001. As he was unable to fulfill his job requirements after the accident, Mr. Fischer was let go of work on February 20, 2002. On June 2, 2002, Mr. Fischer died from complications arising out of the injuries suffered in the accident.

The following analysis evaluates the loss of earning capacity suffered by Mr. Fischer prior to his death and the loss of support to the surviving wife and child arising out of the accident. In addition, the following report also includes an evaluation of the loss of household services suffered by the surviving family members. The trial is to take place in the Franklin County Common Pleas Court. No trial date has been specified as of the report date; January 1, 2005 is identified as the expected trial date for calculation purposes.

Loss of Earning Capacity and Loss of Support

Mr. Fisher was hired by Printline, Inc. on February 1, 1997; at that time, he was earning $9.00 an hour. Since his hire, Mr. Fischer was promoted three times; his hourly earnings were increased to $11.00 on February 1, 1998, to $13.00 on August 1, 1999, and to $14.25 on August 1, 2000. Prior to the accident, Mr. Fischer was working 42.5 hours a week and, as a press operator, was earning $14.25 an hour. While his hourly rate has increased rapidly during the time he was working for Printline, Inc., such rapid growth in his hourly wages was not expected to continue. The real, or inflation-adjusted, growth rate of 0.75 percent is therefore applied to the earning figures for projecting the earnings and fringe benefits into the future that would have been generated by Mr. Fischer had the accident not occurred.

In addition to hourly wages, the followings were the fringe benefits Mr. Fischer had been receiving. At the time of the accident, Mr. Fischer's employer had contributed $46.33 per week to Social Security and $54.31 per week to a health insurance plan. Other fringe benefits included the employer's weekly contribution to a 401-K plan. The employer matched five percent of the employee's weekly contribution of $42.39. Thus, the employer's annual contribution to the 401-K plan was $110.21. All of the fringe benefits are projected to grow at the same real rate earnings would have been expected to grow; at 0.75 percent.

The loss of earning capacity – under what is called the "survivorship claim" – is calculated for the period between October 26, 2001 and June 2, 2002; that is, one day after the accident to the day of death. The calculations are carried out in Table 4. The loss of the different kinds of employer's contributions (contribution to Social Security,

health insurance, and a 401-K plan) are added to the loss of earnings to determine the past loss of earning capacity; in Mr. Fischer's case, the past loss of earnings capacity is $22,202.53.

The loss of support to the surviving family members is calculated for two periods. The past loss of support – depicted in Table 5 – is calculated for the period between June 3, 2002 and December 31, 2004; that is, one day after Mr. Fischer's death to one day before the expected trial date. The future loss of support to the family – depicted in Table 6 – is calculated for the period between January 1, 2005 and June 5, 2034; that is, from the expected day of the trial to the end of Mr. Fischer's work-life expectancy. Mr. Fischer's work-life expectancy is determined according to the study done by Ciecka, Donley, and Goldman[viii]. Based on this study, Mr. Fischer's remaining work-life expectancy after his accident, which depends upon his age (25.71 years), gender (male), and level of education (high school diploma), is an additional 32.61 years. (Work-life expectancy adjusts for the likelihood of premature mortality and for the likelihood of being our of the work force.) The following three paragraphs describe the calculations involved in the loss of support in more detail.

The past loss of support to the surviving family is calculated in the following manner. The sum of the loss of earnings and the loss of employer's fringe benefits are added to determine the loss of earning capacity. Then, to determine the loss of support, the earning capacity is adjusted for personal consumption expenditures. This is done in order to account for the fact that Mr. Fischer would have consumed some of his compensation for his personal benefit and only a portion of his earnings and fringes

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[viii] Ciecka, J., Donley, T., and Goldman, J. (1999-2000). "A Markow Process Model of Work-Life Expectancies Based on labor Market Activity in 1997-98." *Journal of Legal Economics*, 9(3), p. 33.

would have constituted benefits to his wife and any dependent children. (In most economic damage calculations, a child is considered dependent until his/her eighteenth birthday). According to a study by Cheit[ix] – in which a person's personal consumption expenditures are expressed in terms of ones' compensation and depend on the size of the family – with one dependent child, Mr. Fischer would have consumed 26% of his salary for his own personal uses. Based on the above-described method, the past loss of support to Mr. Fischer's family upon his death is $70,349.72. (In general, neither a growth rate, nor a discount rate is applied to the earnings and fringe benefits figures in the past in this case).

The future loss of support to the surviving family, which is the present value of future earnings and benefits adjusted for personal consumption that would have been generated by Mr. Fischer had the accident not occurred, is calculated in the same fashion as the past loss of support. However, in the calculation of the future loss of support, one needs to take real growth and discount rates into consideration. The real growth rate of 0.75 percent is applied to the earnings and fringe benefits to account for the over- and above-inflation growth in the total compensation. Then, the loss of support is calculated, which is equal to earnings plus fringes minus personal consumption. As mentioned above, the personal consumption expenditures represent 26 percent of Mr. Fischer's earnings and fringe benefits. The 26 percent is the figure that is found in Cheit's study for a family of two adults plus a dependent child. At the 18th birthday of Mr. Fischer's son, the personal consumption expenditures as a percentage of compensation changes since, at 18, Larry Fischer is no longer considered to be a dependent child in damage

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[ix] Cheit, E. F. (1961) "Measuring Economic Loss Due to Death and Disability." *Injury and Recovery in the Course of Employment.* New York: Wiley, p. 76.

calculations. After Larry Fischer's 18th birthday, the portion of the earnings and fringe benefits that would have been consumed by Mr. Fischer alone would have increased to 30 percent; 30 percent is the figure that is found in Cheit's study for a family of two adults with no dependent children. Thus, the personal consumption expenditures as a percentage of total compensation change on June 22, 2016, on Larry Fischer's 18th birthday.

Once the future loss of support is determined, a real discount rate of 2.50 percent is applied to calculate the present value of the loss of support to the family. The reason for discounting the figures to present value is that a lump sum of money can be invested today and earn interest in the future. If the discount factor were not applied to the loss of support figures, the future loss of support would be overestimated. The cumulative present value of the loss of support is the running total of the present value of the loss of support for every year between the expected trial date and the end of Mr. Fischer's work-life expectancy, June 5, 2034; the future loss of support is then $623,855.00. In order to determine the total; that is, the past and future loss of support, the results of Table 5 and 6 are added. The total loss of support therefore is $70,349.72 plus $623,855.00, or $694,204.72. The total loss of support of $694,204.72 is added to the loss of earning capacity of $22,202.53 to determine the total economic damage based on compensation or the sum of the loss of earning capacity and loss of support of $716,407.24.

Loss of Household Services

In addition to the loss of earning capacity and support, there is also a loss of household services as a result of the accident. Mr. Fischer, had he not had been involved

in the accident, would have contributed to household services, such as housework, yardwork, and maintenance and repair. The following information was provided with respect to the household services conducted by Mr. Fischer on a regular basis. Mr. Fischer usually performed housework of about five hours a week, yardwork, which he performed between May and September, of about 3 hours a week, and maintenance of about 3 hours per month. The loss of the different household services are valued at the replacement cost of such services ($7.89/hr. for housework, $9.51/hr. for yardwork, and $10.57/hr. for maintenance); that is, the cost of hiring people to perform the services that Mr. Fischer would have performed had he not been involved in the accident[x]. The replacement cost of household services is expected to grow at a real growth rate of 0.50 percent. (The 0.50 percent growth rate is based on historical real growth rates for household services and an assessment of future real growth rates for such services, and is lower than the 0.75 percent growth rate indicated earlier).

The loss of household services is calculated for two periods. The past loss of support is calculated for the period of October 26, 2001 to December 31, 2004, or one day after Mr. Fischer's accident to one day before the expected trial date; the calculations for past loss of support are shown in Table 7. The loss of household services is calculated based upon the information provided by Mr. Fischer's widow and upon the costs of replacing the services Mr. Fischer performed around the house. Thus, the loss of household services suffered by the surviving family is the sum of the loss of housework, yardwork, and maintenance services. The cumulative past loss of household services is the sum of the loss of household services for the period mentioned above, or $9,608.03.

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[x] The state occupational employment and wage estimates used in the loss of household services calculations are based on the Bureau of Labor Statistics' 2001 Occupational Employment Statistics for Ohio. These

The second period for which the loss of household services is calculated is the period between January 1, 2005 and July 13, 2052, or the expected day of the trial and the end of Mr. Fischer's life expectancy. In general, the life expectancy figures are based on a person's sex, race, and age, and are provided by the life tables generated by the Centers for Disease Control and Prevention[xi]. The loss of household services is usually carried through the life expectancy of the deceased person or to the life expectancy of his/her spouse if there is reason to believe that the spouse would pre-decease the deceased person. Since Mrs. Fischer was borne on July 30, 1978 and was a white female, at the time of her husband's accident, she had a life expectancy until January 24, 2058; therefore, Mr. Fischer – a white male of 25.71 years of age who had a remaining life expectancy at the time of his accident until July 13, 2052 – was expected to pre-decease his wife. Accordingly, the calculations for the future loss of household services are carried out through the end of Mr. Fischer's life expectancy.

The calculations of the future loss of household services, depicted in Table 8, are similar to those of the past loss of household services, except for the fact that a real growth rate of 0.50 percent is applied to the different kinds of losses in household services to account for the over- and above-inflation growth in the replacement costs of those household services. In addition, the loss of household services are applied a real discount rate of 2.50 percent for reasons mentioned above. Thus, the present value of the future loss of household services is a running total of such losses between the period of January 1, 2005 through July 13, 2052, and it is $93,306.16. The total – past and future – loss of household services is $102,914.19.

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estimates are available at the following website: http://stats.bls.gov/oes/2001/oes_oh.htm.

Table 3 – General Information

Personal Information for Matthew Fischer:	
Date of Birth	February 8, 1976
Race	White
Level of Education	High School Diploma
Date of Accident	October 25, 2001
Age at Time of Accident in Years	25.71
Remaining WLE at Time of Accident in Years	32.61
Age at End of WLE in Years	58.32
Date at End of WLE	June 5, 2034
Remaining LE at Time of Accident in Years	50.39
Date at End of LE	March 15, 2052
Date of Death	June 2, 2002
Expected Day of Trial	January 1, 2005
Wife - Amy Fischer - Date of Birth	April 7, 1977
Age at Time of Husband's Accident in Years	24.55
Remaining LE at Time of Husband's Accident in Years	56.25
Date at End of LE	January 24, 2058
Son - Larry Fischer - Date of Birth	June 22, 1998
Turns 18 on:	June 22, 2016
Job-Related Information:	
Job Title	Press Operator
Date of Hire	February 1, 1997
Date Work Terminated	February 20, 2002
Number of Hrs/Wk the Person Averaged Before Accident	42.50
Pay Rate at Time of Accident	$14.25
Annual Wage	$31,492.50
Real Growth Rate of Earnings	0.75%
Employer's Contribution per Week to SS at Time of Accident	$46.33
Employer's Contribution to SS in %	7.65%
Employer's Contribution per Week to Health Insurance (HI)	$54.31
Employee's Contribution per Week to 401-K	$42.39
Employee's Contribution to 401-K in %	7.00%
Employer's Match of 401-K Contributions per Year	$110.21
Employer's Match of 401-K Contributions in %	0.35%
Personal Consumption as a Percent of Family Income w/ Dependent Child	26.00%
Personal Consumption as a Percent of Family Income w/o Dependent Child	30.00%
Real Discount Rate	2.50%
Household Services by the Injured:	
Number of Hrs of Housework per Week	5.00
Replacement Cost of Housework per Hour	$7.89
Number of Hrs of Yardwork per Week	3.00
Number of Weeks Yardwork Is Required (May 1 - September 30)	21.80
Replacement Cost of Yardwork per Hour	$9.51
Number of Hrs of Maintenance/Repair per Month	3.00
Replacement Cost of Maintenance/Repair per Hour	$10.57
Real Growth Rate of Replacement Costs	0.50%

[xi] U.S. Department of Health and Human Services. (2002). "United States Life Tables." *National Vital Statistics Reports*. 51(3), pp. 15.

Table 4 – Past Loss of Earning Capacity from the Day After the Accident to the Day of Death

Year	Age	Loss of Earnings	Loss of Employer's Contribution to SS	Loss of Employer's Contribution to HI	Loss of Employer's Contribution to 401-K	Loss of Earning Capacity	Cumulative Past Loss of Earning Capacity
2001[a]	25	5,780.82	442.23	518.40	20.23	6,761.68	6,761.68
2002[b]	26	13,200.97	1,009.87	1,183.81	46.20	15,440.85	22,202.53
2002[c]	26	18,291.53	1,399.30	1,640.31	64.01	21,395.16	
2003	27	31,492.50	2,409.18	2,824.12	110.21	36,836.01	
2004	28	31,492.50	2,409.18	2,824.12	110.21	36,836.01	
[a] Fractional Year: October 26 - December 31, 2001							
[b] Fractional Year: January 1 - June 2, 2002							
[c] Fractional Year: June 3 - December 31, 2002							

TOTAL PAST LOSS OF EARNINGS CAPACITY: $22,202.53

Table 5 – Past Loss of Support from the Day After Death to One Day Before the Expected Trial Date

Year	Age	Loss of Earning Capacity	Personal Consumption Expenditures	Loss of Support	Cumulative Past Loss of Support
2002[a]	26	21,395.16	5,562.74	15,832.42	15,832.42
2003	27	36,836.01	9,577.36	27,258.65	43,091.07
2004	28	36,836.01	9,577.36	27,258.65	70,349.72
[a] Fractional Year: June 3 - December 31, 2002					

TOTAL PAST LOSS OF SUPPORT: $70,349.72

Table 6 – Present Value of Future Loss of Support from the Day After Death to the End of Work-life Expectancy

Year	Age	Loss of Earnings	Loss of Cont. to SS	Loss of Cont. to HI	Loss of 401-K Cont.	Loss of Earn. Cap.	Personal Cons. Exp.	Loss of Support	Discount Factor	PV of Loss of Support	Cum. PV of Loss of Support
2005	29	31,728.69	2,427.25	2,845.30	111.04	37,112.28	9,649.19	27,463.09	0.9756	26,793.26	26,793.26
2006	30	31,966.66	2,445.45	2,866.64	111.87	37,390.62	9,721.56	27,669.06	0.9518	26,335.81	53,129.07
2007	31	32,206.41	2,463.79	2,888.14	112.71	37,671.05	9,794.47	27,876.58	0.9286	25,886.17	79,015.24
2008	32	32,447.96	2,482.27	2,909.80	113.56	37,953.58	9,867.93	28,085.65	0.9060	25,444.22	104,459.46
2009	33	32,691.32	2,500.89	2,931.63	114.41	38,238.24	9,941.94	28,296.30	0.8839	25,009.80	129,469.26
2010	34	32,936.50	2,519.64	2,953.61	115.27	38,525.02	10,016.51	28,508.52	0.8623	24,582.81	154,052.06
2011	35	33,183.53	2,538.54	2,975.76	116.13	38,813.96	10,091.63	28,722.33	0.8413	24,163.10	178,215.16
2012	36	33,432.40	2,557.58	2,998.08	117.00	39,105.07	10,167.32	28,937.75	0.8207	23,750.56	201,965.72
2013	37	33,683.14	2,576.76	3,020.57	117.88	39,398.35	10,243.57	29,154.78	0.8007	23,345.06	225,310.78
2014	38	33,935.77	2,596.09	3,043.22	118.76	39,693.84	10,320.40	29,373.44	0.7812	22,946.49	248,257.27
2015	39	34,190.29	2,615.56	3,066.05	119.66	39,991.55	10,397.80	29,593.74	0.7621	22,554.72	270,811.98
2016[a]	40	34,446.71	2,635.17	3,089.04	120.55	40,291.48	11,323.56	29,815.70	0.7436	22,169.64	292,981.62
2017	41	34,705.06	2,654.94	3,112.21	121.46	40,593.67	12,178.10	30,039.31	0.7254	21,791.13	314,772.75
2018	42	34,965.35	2,674.85	3,135.55	122.37	40,898.12	12,269.44	30,264.61	0.7077	21,419.09	336,191.84
2019	43	35,227.59	2,694.91	3,159.07	123.29	41,204.86	12,361.46	30,491.59	0.6905	21,053.40	357,245.24
2020	44	35,491.80	2,715.12	3,182.76	124.21	41,513.89	12,454.17	30,720.28	0.6736	20,693.95	377,939.18
2021	45	35,757.99	2,735.49	3,206.63	125.14	41,825.25	12,547.57	30,950.68	0.6572	20,340.64	398,279.82
2022	46	36,026.17	2,756.00	3,230.68	126.08	42,138.94	12,641.68	31,182.81	0.6412	19,993.36	418,273.17
2023	47	36,296.37	2,776.67	3,254.91	127.03	42,454.98	12,736.49	31,416.68	0.6255	19,652.01	437,925.18
2024	48	36,568.59	2,797.50	3,279.32	127.98	42,773.39	12,832.02	31,652.31	0.6103	19,316.48	457,241.67
2025	49	36,842.86	2,818.48	3,303.92	128.94	43,094.19	12,928.26	31,889.70	0.5954	18,986.69	476,228.36
2026	50	37,119.18	2,839.62	3,328.70	129.91	43,417.40	13,025.22	32,128.87	0.5809	18,662.53	494,890.89
2027	51	37,397.57	2,860.91	3,353.66	130.88	43,743.03	13,122.91	32,369.84	0.5667	18,343.90	513,234.78
2028	52	37,678.05	2,882.37	3,378.82	131.86	44,071.10	13,221.33	32,612.61	0.5529	18,030.71	531,265.50
2029	53	37,960.64	2,903.99	3,404.16	132.85	44,401.63	13,320.49	32,857.21	0.5394	17,722.87	548,988.37
2030	54	38,245.34	2,925.77	3,429.69	133.85	44,734.65	13,420.39	33,103.64	0.5262	17,420.28	566,408.65
2031	55	38,532.18	2,947.71	3,455.41	134.85	45,070.16	13,521.05	33,351.92	0.5134	17,122.86	583,531.51
2032	56	38,821.17	2,969.82	3,481.33	135.86	45,408.18	13,622.45	33,602.06	0.5009	16,830.52	600,362.04
2033	57	39,112.33	2,992.09	3,507.44	136.88	45,748.74	13,724.62	33,854.07	0.4887	16,543.17	616,905.21
2034[b]	58	16,841.88	1,288.40	1,510.31	58.94	19,699.53	5,909.86	14,577.66	0.4767	6,949.79	623,855.00

FUTURE LOSS OF SUPPORT UPON DEATH: $623,855.00

Table 7 – Past Loss of Household Services
from the Day After the Accident to One Day Before the Expected Trial Date

Year	Age	Loss of Housework Services	Loss of Yardwork Services	Loss of Maintenance/ Repair Services	Loss of Household Services	Cumulative Past Loss of Household Services
2001[a]	25	376.56	0.00	69.85	446.41	446.41
2002	26	2051.40	621.95	380.52	3,053.87	3,500.28
2003	27	2051.40	621.95	380.52	3,053.87	6,554.16
2004	28	2051.40	621.95	380.52	3,053.87	9,608.03
[a] Fractional Year: October 26, 2001 - December 31, 2002						

TOTAL PAST LOSS OF HOUSEHOLD SERVICES: $9,608.03

Table 8 – PV of Future Loss of Household Services from the Day After the Accident to the End of Life Expectancy

Year	Age	Loss of HW Serv.	Loss of YW Serv.	Loss of Maint. Serv.	Loss of HH Serv.	Discount Factor	PV of Loss of HH Serv.	Cum. PV of HH Serv.
2005	29	2061.66	625.06	382.42	3,069.14	0.9756	2,994.29	2,994.29
2006	30	2071.97	628.19	384.33	3,084.49	0.9518	2,935.86	5,930.15
2007	31	2082.33	631.33	386.26	3,099.91	0.9286	2,878.58	8,808.72
2008	32	2092.74	634.49	388.19	3,115.41	0.9060	2,822.41	11,631.13
2009	33	2103.20	637.66	390.13	3,130.99	0.8839	2,767.34	14,398.47
2010	34	2113.72	640.85	392.08	3,146.64	0.8623	2,713.34	17,111.81
2011	35	2124.29	644.05	394.04	3,162.38	0.8413	2,660.40	19,772.21
2012	36	2134.91	647.27	396.01	3,178.19	0.8207	2,608.49	22,380.69
2013	37	2145.58	650.51	397.99	3,194.08	0.8007	2,557.59	24,938.28
2014	38	2156.31	653.76	399.98	3,210.05	0.7812	2,507.69	27,445.97
2015	39	2167.09	657.03	401.98	3,226.10	0.7621	2,458.76	29,904.72
2016	40	2177.93	660.31	403.99	3,242.23	0.7436	2,410.78	32,315.50
2017	41	2188.82	663.62	406.01	3,258.44	0.7254	2,363.74	34,679.24
2018	42	2199.76	666.93	408.04	3,274.73	0.7077	2,317.62	36,996.86
2019	43	2210.76	670.27	410.08	3,291.11	0.6905	2,272.40	39,269.26
2020	44	2221.81	673.62	412.13	3,307.56	0.6736	2,228.06	41,497.31
2021	45	2232.92	676.99	414.19	3,324.10	0.6572	2,184.58	43,681.90
2022	46	2244.09	680.37	416.26	3,340.72	0.6412	2,141.96	45,823.85
2023	47	2255.31	683.78	418.34	3,357.42	0.6255	2,100.16	47,924.02
2024	48	2266.58	687.19	420.43	3,374.21	0.6103	2,059.18	49,983.20
2025	49	2277.92	690.63	422.54	3,391.08	0.5954	2,019.00	52,002.20
2026	50	2289.31	694.08	424.65	3,408.04	0.5809	1,979.61	53,981.81
2027	51	2300.75	697.55	426.77	3,425.08	0.5667	1,940.98	55,922.80
2028	52	2312.26	701.04	428.91	3,442.20	0.5529	1,903.11	57,825.91
2029	53	2323.82	704.55	431.05	3,459.41	0.5394	1,865.98	59,691.88
2030	54	2335.44	708.07	433.21	3,476.71	0.5262	1,829.57	61,521.45
2031	55	2347.11	711.61	435.37	3,494.10	0.5134	1,793.87	63,315.32
2032	56	2358.85	715.17	437.55	3,511.57	0.5009	1,758.87	65,074.18
2033	57	2370.64	718.74	439.74	3,529.12	0.4887	1,724.55	66,798.73
2034	58	2382.50	722.34	441.94	3,546.77	0.4767	1,690.90	68,489.62
2035	59	2394.41	725.95	444.15	3,564.50	0.4651	1,657.90	70,147.53
2036	60	2406.38	729.58	446.37	3,582.33	0.4538	1,625.55	71,773.08
2037	61	2418.41	733.23	448.60	3,600.24	0.4427	1,593.84	73,366.92
2038	62	2430.50	736.89	450.84	3,618.24	0.4319	1,562.74	74,929.65
2039	63	2442.66	740.58	453.10	3,636.33	0.4214	1,532.24	76,461.90
2040	64	2454.87	744.28	455.36	3,654.51	0.4111	1,502.35	77,964.24
2041	65	2467.14	748.00	457.64	3,672.78	0.4011	1,473.03	79,437.28
2042	66	2479.48	751.74	459.93	3,691.15	0.3913	1,444.29	80,881.57
2043	67	2491.88	755.50	462.23	3,709.60	0.3817	1,416.11	82,297.68
2044	68	2504.34	759.28	464.54	3,728.15	0.3724	1,388.48	83,686.15
2045	69	2516.86	763.07	466.86	3,746.79	0.3633	1,361.39	85,047.54
2046	70	2529.44	766.89	469.19	3,765.53	0.3545	1,334.82	86,382.36
2047	71	2542.09	770.72	471.54	3,784.35	0.3458	1,308.78	87,691.14
2048	72	2554.80	774.58	473.90	3,803.28	0.3374	1,283.24	88,974.38
2049	73	2567.57	778.45	476.27	3,822.29	0.3292	1,258.20	90,232.58
2050	74	2580.41	782.34	478.65	3,841.40	0.3211	1,233.65	91,466.23
2051	75	2593.31	786.25	481.04	3,860.61	0.3133	1,209.58	92,675.81
2052[a]	76	1385.26	419.99	256.96	2,062.20	0.3057	630.36	93,306.16

TOTAL FUTURE LOSS OF HOUSEHOLD SERVICES: $93,306.16

TOTAL PAST AND FUTURE LOSS OF HOUSEHOLD SERVICES: $102,914.19

Summary of Losses

Present Value of the Loss of Earning Capacity prior to Death	$ 22,202.53
Loss of Earnings	18,981.77
Loss of Employer's Contribution to Social Security	1,452.13
Loss of Employer's Contribution to Health Insurance	1,702.20
Loss of Employer's Contribution to 401-K Plan	66.43
Present Value of Past Loss of Support to Survivors	$ 70,349.72
Loss of Support Out of Earnings	60,144.62
Loss of Support Out of Employer's Contribution to SS	4,601.06
Loss of Support Out of Employer's Contribution to Health Ins.	5,393.50
Loss of Support Out of Employer's Contribution to 401-K	210.48
Present Value of Future Loss of Support to Survivors	$623,855.00
Loss of Support Out of Earnings	533,357.26
Loss of Support Out of Employer's Contribution to SS	40,801.83
Loss of Support Out of Employer's Contribution to Health Ins.	47,829.33
Loss of Support Out of Employer's Contribution to 401-K	1,866.58
Present Value of Total Loss of Support	$694,204.72
Total Loss of Earning Capacity and Loss of Support	$716,407.24
Present Value of Past Loss of Household Services	$ 9,608.03
Loss of Support Out of Housework Services	6,488.57
Loss of Support Out of Yardwork Services	1,830.58
Loss of Support Out of Maintenance Services	1,288.88

Present Value of Future Loss of Household Services	$ 93,306.16
Loss of Support Out of Housework Services	62,286.09
Loss of Support Out of Yardwork Services	18,647.66
Loss of Support Out of Maintenance Services	12,372.41
PV of Total Loss of Household Services	$102,914.19

Personal Injury Case Using LPE

General Information

Richard Royer was born on August 1, 1962. Mr. Royer lives in Columbus, Ohio with his wife, Jennifer Royer (DOB October 31, 1967), and their three children: Ronald (DOB June 22, 1991), Robert (DOB January 3, 1993), and Rachel (DOB March 11, 1998). On September 9, 2002, Mr. Royer was involved in a motor vehicle accident; leaving him with a permanent partial work disability, which limited his ability to perform physical activities of everyday living. At the time of the accident, Mr. Royer was working as a shipping clerk at Parts for Cars, Ltd. Mr. Royer was hired by Parts for Cars, Ltd. on June 15, 1983 and, on average, worked 40 hours a week until his accident on September 9, 2002. As, upon the accident, Mr. Royer was unable to fulfill the physical requirements of his job description, Mr. Royer was let go from work on October 1, 2002.

The following analysis evaluates the loss of earning capacity suffered by Mr. Royer as a result of the accident. In addition, the report also includes an evaluation of the loss of household services. The trial is to take place in the Franklin County Common Pleas Court. No trial date has been specified as the report date; January 1, 2006 was identified as the expected trial date for calculation purposes.

This case is different from the first case in that it uses a method called LPE, or the probability of living (L), participation (P), and of being employed (E), in order to determine the lost earning capacity. According to the LPE method, the loss of earning capacity is the difference between the total pre-injury earning capacity that Mr. Royer would have been able to earn had the accident not occurred and the total post-injury

earning capacity that Mr. Royer will be generating given a permanent work disability caused by the accident. The evaluation of the loss of earning capacity utilizing the LPE method is done, in part, because the vocational expert in his/her assessment of the injured party's condition refers to such a method. Since Dr. Larry Schultz, a vocational expert who was asked to perform a medical evaluation of Mr. Royer's condition, estimated the damages in terms of reduced probabilities of living, participation, and employment, the LPE method was called for and employed in the process of assessing Mr. Royer's economic losses.

Loss of Earning Capacity

Mr. Fisher was hired by Parts for Cars, Ltd. on June 15, 1983; at that time, he was earning $7.00 an hour. Since his hire, Mr. Royer was promoted six times. His last wage increase occurred on June 1, 2000, when his hourly wage increased from $15.04 to $16.07. While his hourly rate has increased quite fast during the time he was working for Part for Cars, Ltd., such rapid growth in his hourly wages was not expected to continue. The real, or inflation-adjusted, growth rate of 0.75 percent is therefore applied to the earning figures for projecting into the future the pre-injury earnings that would have been generated by Mr. Royer had the accident not occurred. In addition, the same rate is also applied to project the earnings into the future in the post-injury earning capacity calculations assuming a permanent partial work disability.

In addition to hourly wages, the followings were the fringe benefits Mr. Royer had been receiving. At the time of the accident, Mr. Royer's employer had contributed $49.17 per week to Social Security, $57.85 per week to a health insurance plan, and his

employer matched five percent of his own weekly contribution of $45.00 to a 401-K plan, contributing $116.99 annually to the 401-K pension plan.

According to Dr. Schultz's report, the accident resulted in a permanent partial work disability for Mr. Royer. Based on Mr. Royer's condition, Dr. Schultz estimated that he would be able to enter the work force for a maximum of 20 hours per week and he would be able to obtain a position which paid him an hourly wage of $10.00 to a maximum of $12.00. For the purposes of the calculations performed in this report, I took the mean value of that range, and based my calculations on an after-the-accident-wage-rate of $11.00.

As mentioned above, the method (LPE) utilized in this case in order to determine the loss of earning capacity is slightly different from that of the first case presented in this internship report. For both, the pre- and post-injury earning capacity, the following are the guidelines the LPE method prescribes. In order to determine the expected values of compensation, or expected earning capacity, the compensation, which is the sum of all of the earnings and fringe benefits, is adjusted for the probability of work life. The probability of work life is the joint probability of a person being alive (L), participating in the work force (P), and being employed (E). The probability of living depends upon a person's sex, race, and age. The probability of living figures for Mr. Royer, a black male of 40.11 years of age, are obtained from the U.S. Department of Health and Human Services[xii]. The figures for the probability of living, as well as, for the probability of participating in the workforce and of being employed are listed in more details in the Table 10 labeled "Probability of Work Life for Black Males" on Page 43.

[xii] U.S. Department of Health and Human Services. (2002). "United States Life Tables." *National Vital Statistics Reports*. 51(3), pp. 21.

The probabilities of participation and employment depend on a person's age (40.11 years), level of education (high school diploma), and sex (male), and are obtained from the U.S. Census Bureau[xiii]. The probabilities of life for the past pre- and post-injury earning capacity calculations (Tables 11 and 13) do not change from year to year because it is assumed that the probability of living until the expected trial date is one, or 100 percent. (In forensic economics, it is generally assumed that a person will still be alive at the trial date). However, the probabilities for life for the future pre- and post-injury earning capacity calculations (Tables 12 and 14) change as the probability of living is no longer assumed to be one. After the trial, the probability of living to each subsequent year declines.

As it can be seen from the Table 10, the probability of work life with disability is lower than that without disability. Among other criteria[xiv], a person is considered to have a disability if the person is between the ages of 16 and 67 and has a condition that limits the amount or kind of work the person can perform at a job, or has difficulty performing functional and instrumental activities of daily living. Mr. Royer was diagnosed with a permanent partial work disability. The work disability limits the range of jobs he can perform and reduces the hours he can work; thus, his work disability reduces his ability to participate (P) in the workforce and his ability to be employed (E). The lower P and E justify the lower probability of work life that can be applied to the compensation figures that are expected to be received by Mr. Royer upon his re-entry to the workforce.

[xiii] U.S. Census Bureau. "Labor Force Status – Work Disability of Civilians 16 to 74 Years Old, by Educational Attainment and Sex, 2001." pp. 8 – 9.

[xiv] The definition of disability is based on the "Chartbook on Work and Disability in the United States, 1998" from the National Institute on Disability and Rehabilitation Research Institute. Available at: http://www.infouse.com/disabilitydata/workdisability_glossary.html#disability.

Once the compensation is adjusted downward for the probability of work life, the past pre- and post-injury earning capacities are determined simply by summing all of the expected values of compensation until the expected trial date. The future pre- and post-injury earning capacities – calculated from the expected trial date forward – need to be determined in present value terms; thus, the expected values of compensation that would have been expected to be generated by Mr. Royer in the future are adjusted downward by the 2.50 percent real discount rate. The reason for the discounting of the figures to the present is that a lump sum of money can be invested today and earn interest. If the discount factor were not applied to the earning capacity figures, they would be overestimated. In more detail, the followings are the steps in the determination of the loss of earning capacity suffered by Mr. Royer.

The loss of earning capacity is calculated as the difference between the total pre-injury earning capacity that Mr. Royer would have generated had he not been involved in the accident and the total post-injury earning capacity given that Mr. Royer was, in fact, involved in an accident. The pre-injury earning capacity, which assumes that Mr. Royer is not injured, is carried out for two periods in order to determine the total pre-injury earning capacity. The past pre-injury earning capacity calculations are done for the period of September 10, 2002 through December 31, 2005; or, one day after the accident to one day before the expected trial date. (Since no trial date has been specified, the calculations are carried out through a pre-determined date; January 1, 2006). The calculations for the past pre-injury earning capacity are carried out in Table 11; as seen from the table, the past pre-injury earning capacity is $120,241.63. The future pre-injury earning capacity calculations, shown in Table 12, are carried out from the expected trial

date to Mr. Royer's 65th birthday. (In practice, the earnings and fringe benefits projections in an LPE case can be extended beyond age 65; nevertheless, in most cases, very little difference occurs when doing so). Table 12 shows that the future pre-injury earning capacity is $537,382.17. The total pre-injury capacity is the sum of the past and future pre-injury earning capacity of $120,241.63 and $537,382.17; or $657,623.80.

The post-injury earning capacity takes into consideration the medical evaluation of Dr. Schultz. According to Dr. Schultz's assessment, Mr. Royer suffered injuries that caused him to sustain a permanent partial work disability. The post-injury earning capacity is also carried out for two periods in order to determine the total post-injury earning capacity. The past post-injury earning capacity calculations are done for the period of September 10, 2002 through December 31, 2005, or one day after the accident to one day before the expected trial date. The calculations for past post-injury earning capacity are carried out in Table 13; as seen from the table, the past post-injury earning capacity is $0.00. (The $0.00 earning capacity is based on the vocational expert's report, which specified that, due to his injuries, Mr. Royer was not going to be able to enter the workforce until 2006). The future post-injury earning capacity calculations, shown in Table 14, are carried out from the expected trial date to Mr. Royer's 65th birthday. Table 14 shows that the future post-injury earning capacity is $52,164.05. The total post-injury earning capacity is the sum of the past and future post-injury earning capacity, or $52,164.05.

Once both, the total pre- and post-injury earning capacity figures are determined, the loss of earning capacity suffered by Mr. Royer as a result of the accident can easily be

determined by taking the difference between the pre- and post-injury earning capacity. As Table 14 shows, the loss of earning capacity using the LPE method is $605,459.75.

Loss of Household Services

The calculations of the loss of household services suffered by Mr. Royer resulting from his accident are much the same as the calculations in the "Loss of Household Services" section of the first case presented in this internship report. The determination of the loss of household services suffered by Mr. Royer is important because Mr. Royer, had he not had been involved in the accident, would have contributed to household services, such as housework, yardwork, and maintenance and repair. The following information was available about the household services that were conducted by Mr. Royer on a regular basis. Mr. Royer performed housework of about ten hours a week, yardwork, which he performed between May and September, of about one hour a week, and maintenance of about one hour per month. After the accident and the sustained work disability, Mr. Royer is no longer able to fulfill all of the household services that he has previously performed. With his injuries, Mr. Royer is only able to contribute about five hours of housework services to the household, and he has lost his ability to perform yardwork and maintenance/repair.

The loss of household services is valued at the replacement cost[xv] of such services; that is, the cost of hiring people to perform the services that Mr. Royer would have performed himself had he not been involved in the accident. (The replacement costs

[xv] The state occupational employment and wage estimates used in the loss of household services calculations are based on the Bureau of Labor Statistics' 2001 Occupational Employment Statistics for Ohio. These estimates are available at the following website: http://stats.bls.gov/oes/2001/oes_oh.htm.

are the following: $7.89/hr. for housework, $9.51/hr. for yardwork, and $10.51 for maintenance). The replacement costs of household services are expected to grow at a real growth rate of 0.50 percent, an estimate that is based on historical real growth rates and an assessment of future real growth rates for household services.

The loss of household services is calculated for two periods. The past loss of support is calculated for the period of September 10, 2002 to December 31, 2005, or one day after Mr. Royer's accident to one day before the expected trial date. The calculations are shown in Table 15. The loss of household services is calculated based upon the information provided to me by Mr. Royer and upon the cost of replacing the services he used to perform around the house. Thus, the loss of household services suffered by the plaintiff is the sum of the loss of housework (which is the reduced hours of housework performed by Mr. Royer times the replacement cost of housework), yardwork (which is the reduced hours of such service times the replacement cost of yardwork services), and maintenance services (which is the reduced hours of maintenance services multiplied by the replacement cost of such service). The cumulative past loss of household services – depicted in Table 15 – is the sum of the loss of household services for the period mentioned above, or $7,859.49.

The second period for which the loss of household services is calculated is the period between January 1, 2006 and November 24, 2034, or the expected day of the trial and the end of Mr. Royer's life expectancy. The figures for the end of life expectancy are based on a person's sex (male), race (black), and age (40.11 years), and are provided by the life tables generated by the Centers for Disease Control and Prevention[xvi]. Unlike in a

[xvi] U.S. Department of Health and Human Services. (2002). "United States Life Tables." *National Vital Statistics Reports*. 51(3), pp. 15.

wrongful death case where a person dies and the loss of household services are suffered by the surviving family members, in a personal injury case, the losses are suffered by the injured person. Therefore, the loss of household services calculations are carried through the end of the life expectancy of the injured person, and not to the shorter of either the deceased person's or his/her surviving spouse's life expectancy, as it was done in the previous case. Consequently, the calculations are carried out through November 21, 2034.

The calculations of the future loss of household services, shown in Table 16, are similar to those of the past loss of household services, except for the fact that a real growth rate of 0.50 percent is applied to the different kinds of losses in household services to account for the over- and above-inflation growth in the replacement costs of household services. In addition, the loss of household services are applied a real discount rate of 2.50 percent for reasons mentioned above. Thus, the present value of the future loss of household services is a running total for the period of January 1, 2006 through November 24, 2034, and it is $52,032.73. The total loss of household is the sum of the past and future loss of such services, or $59,892.21.

Table 9 – General Information

Personal Information for Richard Royer:	
Date of Birth	August 1, 1962
Race	Black
Level of Education	High School Diploma
Date of Accident	September 9, 2002
Age at Time of Accident in Years	40.11
Remaining LE at Time of Accident in Years	32.20
Date at End of LE	November 21, 2034
Expected Day of Trial	January 1, 2006
Wife - Jennifer Royer - Date of Birth	October 31, 1967
Son - Ronald Royer - Date of Birth	June 22, 1991
Son - Robert Royer - Date of Birth	January 3, 1993
Daughter - Rachel Royer - Date of Birth	March 11, 1998
Job-Related Information:	
Job Title	Press Operator
Date of Hire	June 15, 1983
Date Work Terminated	October 1, 2002
Number of Hrs/Wk the Person Averaged Before Accident	40.00
Pay Rate at Time of Accident	$16.07
Annual Wage Prior to the Accident	$33,425.60
Number of Hrs/Wk the Person Can Work with Disability	20.00
Pay Rate with Disability	$11.00
Annual Wage with Disability	$11,440.00
Real Growth Rate of Earnings	0.75%
Employer's Contribution per Week to SS at Time of Accident	$49.17
Employer's Contribution to SS in %	7.65%
Employer's Contribution per Week to Health Insurance (HI)	$57.85
Employer's Contribution to HI in %	9.00%
Employee's Contribution per Week to 401-K	$45.00
Employer's Match of 401-K Contributions per Year	$116.99
Employer's Match of 401-K Contributions in %	0.35%
Real Discount Rate	2.50%
Household Services by the Injured:	
Number of Hrs of Housework per Week Prior to Accident	10.00
Number of Hrs of Housework per Week After the Accident	5.00
Replacement Cost of Housework per Hour	7.89
Number of Hrs of Yardwork per Week Before the Accident	1.00
Number of Hrs of Yardwork per Week After the Accident	0.00
Number of Weeks Yardwork Is Required (May 1 - September 30)	21.80
Replacement Cost of Yardwork per Hour	9.51
Number of Hrs of Maintenance/Repair per Month Prior the Accident	1.00
Number of Hrs of Maintenance/Repair per Month After the Accident	0.00
Replacement Cost of Maintenance/Repair per Hour	10.57
Real Growth Rate of Replacement Costs	0.50%

Table 10 – Probability of Work Life for Black Males

			With No Disability		With Disability	
Age	Number Surviving to Next Age Category	Probability of Living (L)	Probability of Part. & Emp. (PE)	Probability of Work Life (LPE)	Probability of Part. & Emp. (PE)	Probability of Work Life (LPE)
40	91,827	100.000%	92.900%	92.900%	33.100%	33.100%
41	91,404	99.539%	92.900%	92.472%	33.100%	32.948%
42	90,951	99.046%	92.900%	92.014%	33.100%	32.784%
43	90,459	98.510%	92.900%	91.516%	33.100%	32.607%
44	89,922	97.925%	92.900%	90.973%	33.100%	32.413%
45	89,333	97.284%	93.500%	90.961%	26.800%	26.072%
46	88,684	96.577%	93.500%	90.300%	26.800%	25.883%
47	87,972	95.802%	93.500%	89.575%	26.800%	25.675%
48	87,196	94.957%	93.500%	88.785%	26.800%	25.448%
49	86,359	94.045%	93.500%	87.932%	26.800%	25.204%
50	85,464	93.071%	93.500%	87.021%	26.800%	24.943%
51	84,508	92.030%	93.500%	86.048%	26.800%	24.664%
52	83,486	90.917%	93.500%	85.007%	26.800%	24.366%
53	82,399	89.733%	93.500%	83.900%	26.800%	24.048%
54	81,247	88.478%	93.500%	82.727%	26.800%	23.712%
55	80,033	87.156%	74.600%	65.019%	18.500%	16.124%
56	78,751	85.760%	74.600%	63.977%	18.500%	15.866%
57	77,396	84.285%	74.600%	62.876%	18.500%	15.593%
58	75,966	82.727%	74.600%	61.715%	18.500%	15.305%
59	74,461	81.088%	74.600%	60.492%	18.500%	15.001%
60	72,884	79.371%	74.600%	59.211%	18.500%	14.684%
61	71,236	77.576%	74.600%	57.872%	18.500%	14.352%
62	69,519	75.706%	74.600%	56.477%	18.500%	14.006%
63	67,742	73.771%	74.600%	55.033%	18.500%	13.648%
64	65,915	71.782%	74.600%	53.549%	18.500%	13.280%
65	64,048	69.749%	34.000%	23.715%	4.400%	3.069%

Sources:

- U.S. Department of Health and Human Services, "United States Life Tables, 2002"
- U.S. Census Bureau, "Labor Force Status - Work Disability of Civilians 16 to 74 Years Old, by Education Attainment and Sex, 2001"

Table 11 – Past Pre-Injure Earning Capacity form One Day After the Accident the Once Day Before the Expected Trial Date

Year	Age	Earnings	Employer's Contr. to SS	Employer's Contr. to HI	Employer's Contr. to 401-K	Compens.	Probability of Work Life	Expected Value of Compens.	Cum. Past Pre-Injury Compens.
2002[a]	40	10,348.20	791.64	931.34	36.22	12,107.39	92.90%	11,247.77	11,247.77
2003	41	33,425.60	2,557.06	3,008.30	116.99	39,107.95	92.90%	36,331.29	47,579.06
2004	42	33,425.60	2,557.06	3,008.30	116.99	39,107.95	92.90%	36,331.29	83,910.34
2005	43	33,425.60	2,557.06	3,008.30	116.99	39,107.95	92.90%	36,331.29	120,241.63
[a] Fractional Year: September 10 - December 31, 2002									

TOTAL PAST PRE-INJURY EARNING CAPACITY: $120,241.63

Table 12 – Present Value of Future Pre-Injury Earning Capacity from the Day of the Expected Trial Date to Age 65

Year	Age	Earnings	Employer's Contr. to SS	Employer's Contr. to HI	Employer's Contr. to 401-K	Compens.	Probability of Work Life	Expected Value of Compens.	Discount Factor	Present Value of Compens.	Cum. Future Pre-Injury Compens.
2006	44	33,676.29	2,576.24	3,030.87	117.87	39,401.26	0.91516	36,058.46	0.9756	35,178.99	35,178.99
2007	45	33,928.86	2,595.56	3,053.60	118.75	39,696.77	0.90973	36,113.24	0.9518	34,373.10	69,552.09
2008	46	34,183.33	2,615.02	3,076.50	119.64	39,994.50	0.90961	36,379.22	0.9286	33,781.72	103,333.81
2009	47	34,439.71	2,634.64	3,099.57	120.54	40,294.46	0.90300	36,385.79	0.9060	32,963.73	136,297.54
2010	48	34,698.00	2,654.40	3,122.82	121.44	40,596.66	0.89575	36,364.37	0.8839	32,140.80	168,438.34
2011	49	34,958.24	2,674.31	3,146.24	122.35	40,901.14	0.88785	36,313.92	0.8623	31,313.38	199,751.73
2012	50	35,220.43	2,694.36	3,169.84	123.27	41,207.90	0.87932	36,235.08	0.8413	30,483.32	230,235.04
2013	51	35,484.58	2,714.57	3,193.61	124.20	41,516.96	0.87021	36,128.50	0.8207	29,652.34	259,887.39
2014	52	35,750.71	2,734.93	3,217.56	125.13	41,828.33	0.86048	35,992.30	0.8007	28,820.06	288,707.44
2015	53	36,018.84	2,755.44	3,241.70	126.07	42,142.05	0.85007	35,823.70	0.7812	27,985.42	316,692.86
2016	54	36,288.98	2,776.11	3,266.01	127.01	42,458.11	0.83900	35,622.45	0.7621	27,149.47	343,842.33
2017	55	36,561.15	2,796.93	3,290.50	127.96	42,776.55	0.82727	35,387.86	0.7436	26,312.85	370,155.18
2018	56	36,835.36	2,817.91	3,315.18	128.92	43,097.37	0.65019	28,021.30	0.7254	20,327.22	390,482.40
2019	57	37,111.63	2,839.04	3,340.05	129.89	43,420.60	0.63977	27,779.24	0.7077	19,660.12	410,142.53
2020	58	37,389.96	2,860.33	3,365.10	130.86	43,746.26	0.62876	27,506.03	0.6905	18,991.96	429,134.49
2021	59	37,670.39	2,881.78	3,390.33	131.85	44,074.35	0.61715	27,200.30	0.6736	18,322.80	447,457.29
2022	60	37,952.92	2,903.40	3,415.76	132.84	44,404.91	0.60492	26,861.38	0.6572	17,653.17	465,110.45
2023	61	38,237.56	2,925.17	3,441.38	133.83	44,737.95	0.59211	26,489.68	0.6412	16,984.28	482,094.73
2024	62	38,524.34	2,947.11	3,467.19	134.84	45,073.48	0.57872	26,084.89	0.6255	16,316.82	498,411.56
2025	63	38,813.28	2,969.22	3,493.19	135.85	45,411.53	0.56477	25,647.09	0.6103	15,651.67	514,063.23
2026	64	39,104.38	2,991.48	3,519.39	136.87	45,752.12	0.55033	25,178.95	0.5954	14,991.20	529,054.43
2027[a]	65	22,883.02	1,750.55	2,059.47	80.09	26,773.14	0.53549	14,336.79	0.5809	8,327.74	537,382.17

[a] Fractional Year: January 1 - August 1, 2027

TOTAL FUTURE PRE-INJURY EARNING CAPACITY: $537,382.17

TOTAL PAST AND FUTURE PRE-INJURY EARNING CAPACITY: $657,623.80

Table 13 – Past Post-Injury Earning Capacity from One Day After the Accident to One Day Before the Expected Trial Date

Year	Age	Earnings	Employer's Contr. to SS	Employer's Contr. to HI	Employer's Contr. to 401-K	Compens.	Probability of Work Life	Expected Value of Compens.	Cum. Past Pre-Injury Compens.
2002[a]	40	0.00	0.00	0.00	0.00	0.00	33.10%	0.00	0.00
2003	41	0.00	0.00	0.00	0.00	0.00	33.10%	0.00	0.00
2004	42	0.00	0.00	0.00	0.00	0.00	33.10%	0.00	0.00
2005	43	0.00	0.00	0.00	0.00	0.00	33.10%	0.00	0.00
[a] Fractional Year: September 10 - December 31, 2002									

TOTAL PAST POST-INJURY EARNING CAPACITY: $0.00

Table 14 – Present Value of Future Post-Injury Earning Capacity from the Day of the Expected Trial Date to Age 65

Year	Age	Earnings	Employer's Contr. to SS	Employer's Contr. to HI	Employer's Contr. to 401-K	Compens.	Probability of Work Life	Expected Value of Compens.	Discount Factor	Present Value of Compens.	Cum. Future Pre-Injury Compens.
2006	44	11,525.80	881.72	1,037.32	40.34	13,485.19	0.32607	4,397.10	0.9756	4,289.85	4,289.85
2007	45	11,612.24	888.34	1,045.10	40.64	13,586.32	0.32413	4,403.78	0.9518	4,191.58	8,481.43
2008	46	11,699.34	895.00	1,052.94	40.95	13,688.22	0.26072	3,568.81	0.9286	3,313.99	11,795.43
2009	47	11,787.08	901.71	1,060.84	41.25	13,790.88	0.25883	3,569.45	0.9060	3,233.75	15,029.18
2010	48	11,875.48	908.47	1,068.79	41.56	13,894.32	0.25675	3,567.35	0.8839	3,153.02	18,182.20
2011	49	11,964.55	915.29	1,076.81	41.88	13,998.52	0.25448	3,562.40	0.8623	3,071.85	21,254.05
2012	50	12,054.28	922.15	1,084.89	42.19	14,103.51	0.25204	3,554.67	0.8413	2,990.42	24,244.47
2013	51	12,144.69	929.07	1,093.02	42.51	14,209.29	0.24943	3,544.21	0.8207	2,908.90	27,153.37
2014	52	12,235.78	936.04	1,101.22	42.83	14,315.86	0.24664	3,530.85	0.8007	2,827.25	29,980.62
2015	53	12,327.54	943.06	1,109.48	43.15	14,423.23	0.24366	3,514.31	0.7812	2,745.38	32,726.00
2016	54	12,420.00	950.13	1,117.80	43.47	14,531.40	0.24048	3,494.57	0.7621	2,663.37	35,389.37
2017	55	12,513.15	957.26	1,126.18	43.80	14,640.39	0.23712	3,471.56	0.7436	2,581.30	37,970.66
2018	56	12,607.00	964.44	1,134.63	44.12	14,750.19	0.16124	2,378.31	0.7254	1,725.27	39,695.94
2019	57	12,701.55	971.67	1,143.14	44.46	14,860.82	0.15866	2,357.76	0.7077	1,668.65	41,364.59
2020	58	12,796.81	978.96	1,151.71	44.79	14,972.27	0.15593	2,334.57	0.6905	1,611.94	42,976.53
2021	59	12,892.79	986.30	1,160.35	45.12	15,084.56	0.15305	2,308.62	0.6736	1,555.15	44,531.68
2022	60	12,989.49	993.70	1,169.05	45.46	15,197.70	0.15001	2,279.86	0.6572	1,498.31	46,029.99
2023	61	13,086.91	1,001.15	1,177.82	45.80	15,311.68	0.14684	2,248.31	0.6412	1,441.54	47,471.53
2024	62	13,185.06	1,008.66	1,186.66	46.15	15,426.52	0.14352	2,213.95	0.6255	1,384.89	48,856.42
2025	63	13,283.95	1,016.22	1,195.56	46.49	15,542.22	0.14006	2,176.80	0.6103	1,328.44	50,184.86
2026	64	13,383.58	1,023.84	1,204.52	46.84	15,658.78	0.13648	2,137.06	0.5954	1,272.38	51,457.24
2027[a]	65	7,831.78	599.13	704.86	27.41	9,163.18	0.13280	1,216.83	0.5809	706.82	52,164.05
[a] Fractional Year: January 1 - August 1, 2027											

TOTAL FUTURE POST-INJURY EARNING CAPACITY: $52,164.05
TOTAL PAST AND FUTURE POST-INJURY EARNING CAPACITY: $52,164.05
LOSS OF EARNING CAPACITY DUE TO INJURY: $605,459.75

Table 15 – Past Loss of Household Services from the Day After the Accident to One Day Before the Expected Trial Date

Year	Age	Loss of Housework Services	Loss of Yardwork Services	Loss of Maintenance/ Repair Services	Loss of Household Services	Cumulative Past Loss of Household Services
2002[a]	40	635.09	28.46	39.27	702.81	702.81
2003	41	2051.40	207.32	126.84	2,385.56	3,088.37
2004	42	2051.40	207.32	126.84	2,385.56	5,473.93
2005	43	2051.40	207.32	126.84	2,385.56	7,859.49
[a] Fractional Year: September 10 - December 31, 2002						

TOTAL PAST LOSS OF HOUSEHOLD SERVICES: $7,859.49

Table 16 – Present Value of Future Loss of Household Services from One Day After the Accident to the End of Life Expectancy

Year	Age	Loss of Housework Services	Loss of Yardwork Services	Loss of Maintenance Services	Loss of Household Services	Discount Factor	PV of Loss of HH Services	Cumulative PV of HH Services
2006	44	2061.66	208.35	127.47	2,397.49	0.9756	2,339.01	2,339.01
2007	45	2071.97	209.40	128.11	2,409.47	0.9518	2,293.37	4,632.38
2008	46	2082.33	210.44	128.75	2,421.52	0.9286	2,248.62	6,881.00
2009	47	2092.74	211.50	129.40	2,433.63	0.9060	2,204.75	9,085.75
2010	48	2103.20	212.55	130.04	2,445.80	0.8839	2,161.73	11,247.48
2011	49	2113.72	213.62	130.69	2,458.03	0.8623	2,119.55	13,367.03
2012	50	2124.29	214.68	131.35	2,470.32	0.8413	2,078.19	15,445.22
2013	51	2134.91	215.76	132.00	2,482.67	0.8207	2,037.64	17,482.86
2014	52	2145.58	216.84	132.66	2,495.08	0.8007	1,997.88	19,480.74
2015	53	2156.31	217.92	133.33	2,507.56	0.7812	1,958.90	21,439.64
2016	54	2167.09	219.01	133.99	2,520.09	0.7621	1,920.68	23,360.31
2017	55	2177.93	220.10	134.66	2,532.69	0.7436	1,883.20	25,243.51
2018	56	2188.82	221.21	135.34	2,545.36	0.7254	1,846.45	27,089.97
2019	57	2199.76	222.31	136.01	2,558.08	0.7077	1,810.43	28,900.39
2020	58	2210.76	223.42	136.69	2,570.87	0.6905	1,775.10	30,675.49
2021	59	2221.81	224.54	137.38	2,583.73	0.6736	1,740.46	32,415.96
2022	60	2232.92	225.66	138.06	2,596.65	0.6572	1,706.50	34,122.46
2023	61	2244.09	226.79	138.75	2,609.63	0.6412	1,673.21	35,795.67
2024	62	2255.31	227.93	139.45	2,622.68	0.6255	1,640.56	37,436.23
2025	63	2266.58	229.06	140.14	2,635.79	0.6103	1,608.55	39,044.77
2026	64	2277.92	230.21	140.85	2,648.97	0.5954	1,577.16	40,621.94
2027	65	2289.31	231.36	141.55	2,662.22	0.5809	1,546.39	42,168.32
2028	66	2300.75	232.52	142.26	2,675.53	0.5667	1,516.21	43,684.54
2029	67	2312.26	233.68	142.97	2,688.91	0.5529	1,486.63	45,171.17
2030	68	2323.82	234.85	143.68	2,702.35	0.5394	1,457.62	46,628.79
2031	69	2335.44	236.02	144.40	2,715.86	0.5262	1,429.18	48,057.97
2032	70	2347.11	237.20	145.12	2,729.44	0.5134	1,401.29	49,459.26
2033	71	2358.85	238.39	145.85	2,743.09	0.5009	1,373.95	50,833.21
2034[a]	72	2110.85	213.33	130.52	2,454.69	0.4887	1,199.51	52,032.73
[a] Fractional Year: January 1 - November 21, 2034								

TOTAL FUTURE LOSS OF HOUSEHOLD SERVICES: $52,032.73

TOTAL PAST AND FUTURE LOSS OF HOUSEHOLD SERVICES: $59,892.21

Summary of Losses

Present Value of Total Pre-Injury Earning Capacity	$ 657,623.80
Earnings	562,071.62
Employer's Contribution to Social Security	42,998.48
Employer's Contribution to Health Insurance	50,586.45
Employer's Contribution to 401-K Plan	1,967.25
Present Value of Total Post-Injury Earning Capacity	$ 52,164.05
Earnings	44,584.66
Employer's Contribution to Social Security	3,410.73
Employer's Contribution to Health Insurance	4,012.62
Employer's Contribution to 401-K Plan	156.04
Present Value of Total Loss of Earning Capacity	$605,459.75
Present Value of Total Loss of Household Services	$ 59,892.21
Loss of Housework Services	51,533.64
Loss of Yardwork Services	5,172.20
Loss of Maintenance Services	3,186.37

Life Care Plan

General Information

Mary Lotew was born on January 9, 1964. On April 23, 2002, Mrs. Lotew was involved in a motor vehicle accident; leaving her with numerous permanent injuries. The purpose of this report is to assess the present value of the costs of the life care plan – produced by William Goldenberg, CLCP – for Mrs. Lotew.

Cost of Future Care

Mrs. Lotew is a white female; consequently, on the expected trial date, set on July 19, 2004, she will be 40.52 years old and will have a remaining life expectancy of 40.83 years[xvii]. The life care plan generated by Mr. Goldenberg projects future costs from the expected trial date to the end of Mrs. Lotew's life expectancy. Accordingly, the following calculations of the present value of the cost of future care for Mrs. Lotew are also carried out for the same period, July 19, 2004 through May 18, 2045, with the first year of the calculations extending from July 19, 2004 until July 18, 2005, and the last year of the calculations extending from July 19, 2044 through May 18, 2045.

The life care plan by Mr. Goldenberg presented Mrs. Lotew's family with three options in order to accommodate Mrs. Lotew's future medical and other kinds of needs. The three life care plan options are similar; they differ mainly in the supportive care services they recommend. Option one recommends adult daycare for Mrs. Lotew five

[xvii] The life expectancy figures are based on the following source for a white female between the ages of 40 and 41 years: U.S. Department of Health and Human Services. (2002). "United States Life Tables." *National Vital Statistics Reports*. 51(3), pp. 17.

days a week, fifty weeks a year. The second option recommends respite care for 24 hours a day for two weeks each year in addition to five hours of home health aid five times a week, fifty weeks a year. The third option, regarding supportive care, suggests an ICF-MR facility for 365 days a year. All of the above listed supportive care services would last from the expected trial date to the end of Mrs. Lotew's life expectancy. The present value calculations are carried out for each option in Tables 18 through 20.

While the three options differ with respect to the supportive care they recommend, the other types of medical services or commodities they prescribe are mostly the same. With respect to projected therapeutic evaluation, options one and two call for annual physical and occupational therapy evaluations and semiannual psychological evaluation. The third option excludes the physical and occupational therapy evaluations as such services are included in the services that an ICF-MR facility provides. With respect to home adjustments, options one and two require the installation of a shower chair and a hand held shower set every seven years. The third option does not require such adjustments to the current home since, under the third option, Mrs. Lotew would not be taken care of at home. With respect to future medical care, medications, and therapeutic modalities, all three options prescribe the same services and commodities. All of these services and commodities, their duration, frequency, and per unit cost are summarized on Page 56 of the report under the "Future Medical Costs to Be Incurred" section of Table 17. All of the above-listed information are based on the life care plan provided by Mr. Goldenberg.

The per-unit-cost information – provided by Mr. Goldenberg's report – are based on current market prices for the different services and commodities. For the purposes of

the report, the costs of the different kinds of medical services and commodities are expressed in 2004 dollars. For subsequent years however, real growth rates are applied to those services and commodities to account for the real increase in such products' prices. A real – over-and-above-inflation – rate of 0.75%, 1.50%, and 2.25% are applied to supportive care services (i.e. adult daycare, home health aid), medical commodities (i.e. medications and home accessories), and medical services (i.e. therapeutic evaluations and medical care services). These growth rates are based on historical real growth rates and on an assessment of future real growth rates for the different products and services. Upon applying real growth rates to the different costs, a real discount rate of 2.50 percent is also applied to them in order to account for the time value of money. The reason for discounting the figures to the present value is that a lump sum of money can be invested today and earn interest in the future. As mentioned in the earlier two cases, if the discount factor were not applied to the cost figures, the present value of the future cost of life care under the different options would be overestimated.

There is one kind of cost to which neither growth rates nor discount rates are applied; this cost category include the costs of therapeutic modalities. These costs in the calculations are treated as one-time costs. The rationale for such treatment is that the life care plan prescribed a certain number of visits or evaluations of each; however, Dr. Goldenberg was unable to specify the intervals at which the different visits or evaluations were to be conducted. For example, Dr. Goldenberg's report prescribes fifteen visits to physical therapy between the ages of 40 and 42; however, it does not specify whether these visits should occur all at ones (i.e., once a week for the first 15 weeks), or they

should be spread out evenly over the two years. Thus, these costs are treated as one-time costs in the calculations with no growth and discount rates applied to them.

Table 18 demonstrates the calculations for the present value of the cost of future care based on the first option. The present value of the cost of the projected therapeutic evaluations – including physical and occupational therapy evaluations, and psychological evaluations – are $30,737.08. For 2004, the cost of therapeutic evaluations is the sum of the different services times their frequencies. For years 2005 and on, the sum is multiplied by the growth factor to account for the growth in the cost of medical services, then it is divided by the discount factor in order to adjust the figure downward to its present value. The present value of the future medical care, including primary care and neurologist visits, of future medications, home adjustments, one-time costs, and of supportive care services are $9,851.63, $3,883.26, $3,613.07, $7,275.00, and 447,755.50. The process for the calculations of the different figures for the years 2004 and beyond are the same as mentioned above; except, different growth rates are applied to the different services and commodities. Thus, the total present value of the cost of future care based on option one is $503,115.53.

Table 19 demonstrates the calculations of the present value the cost of future care under the second option provided by Mr. Goldenberg. The present value figures for the therapeutic evaluations, future medical care services, future medications, home adjustments, and one-time costs are the exact same as the ones already obtained in Table 18. The only difference between what option one and two prescribes is in terms of supportive care. Under the second option, supportive care includes home health aid and respite care services. Thus, for 2004, the cost of supportive care is the sum of the unit

cost of respite care and home health aid multiplied by the respective frequencies. For years 2005 through Mrs. Lotew's life expectancy, a growth rate of 0.75 percent and a discount rate of 2.50 percent are applied to the cost figures. Thus, the present value of the cost of supportive care is $838,795.30. The total present value of the cost of future care under option 2 is $894,585.34.

Table 20 displays the calculations of the present value of the cost of future care based upon Mr. Goldberg's third life care plan option. The present value figures for the future medical care services, future medications, and one-time costs are the exact same as the ones already obtained in Tables 18 and 19. The present value of therapeutic services under option three differs from that under the first two options in that it does not include the physical and occupational therapy evaluations since those services are part of all of the services an ICF-MR facility provides. The option three calculations are also different with respect to the supportive care services. The present value of the supportive care option three recommends – an ICF-MR facility – is $1,906,692.17. The total present value of the cost of future medical care under option three is $1,942,676.53. What follows then are the tables mentioned above and a numerical summary of the different options and their corresponding costs in present value terms.

Table 17 – General Information

Personal Information for Mary Lotew:				
Date of Birth	January 9, 1964			
Race	White			
Level of Education	Bachelor's Degree			
Date of Accident	April 23, 2002			
Age at Time of Accident in Years	38.28			
Remaining LE at Time of Accident in Years	42.94			
Expected Day of Trial	July 19, 2004			
Age at Time of Expected Trial in Years	40.52			
Remaining LE at Time of Expected Trial in Years	40.83			
Date at End of LE	May 18, 2045			
Age at End of LE	81.35			
Future Medical Costs to Be Incurred				
Event	Frequency	Duration	Cost per	Unit of Cost
Projected Therapeutic Evaluation				
Physical Therapy Evaluation	Annual	40 to LE	$260.00	Annual
Occupational Therapy Evaluation	Annual	40 to LE	$140.00	Annual
Psychological Evaluation	Twice a Year	40 to LE	$190.00	Semiannual
Incremental Future Medical Care				
Primary Care	Twice a Year	40 to LE	$95.00	Semiannual
Neurologist	Annual	40 to LE	$60	Annual
Incremental Future Medications				
Paxil	Daily - 20 mg	40 to 41	$162.00	Monthly
Home Adjustments				
Shower Chair	Every 7 Years	40 to LE	$700	6 times
Hand Held Shower	Every 7 Years	40 to LE	$10	6 times
Projected Therapeutic Modalities - One-Time Costs				
Physical Therapy	15 times	40 to 42	$150.00	15 times
Psychological Counseling	25 times	40 to LE	$135.00	25 times
Neuropsychologist	1 time	40 to LE	$1,650.00	1 time
Supportive Care				
Option I:				
Adult Daycare	8 Hr/Day, 5 Days/Wk 50 Wks/Yr	40 to LE	$60.00	Daily
Option II:				
Home Health Aid	5 Hr/Day, 5 Days/Wk 50 Wks/Yr	40 to LE	$18.00	Hourly
Respite Care	2 Weeks / Year	40 to LE	$400.00	Daily
Option III:				
ICF-MR Facility	365 Days / Year	40 to LE	$175.00	Daily
Real Growth Rate for:				
Medical Service	2.25%			
Medical Commodities	1.50%			
Non-Specialized Supportive Care	0.75%			
Real Discount Rate	2.50%			

Table 18 – Option 1: Present Value of Future Care from the Expected Trial Date to the End of Life Expectancy

Year	Age	Therapeutic Evaluation	Incr. Future Medical Care	Incr. Future Medications	Home Adjustments	One-Time Costs	Supportive Care
2004[a]	40.52	780.00	250.00	1,944.00	710.00	7,275.00	15,000.00
2005	41.52	778.10	249.39	1,939.26			14,743.90
2006	42.52	776.20	248.78				14,492.18
2007	43.52	774.31	248.18				14,244.75
2008	44.52	772.42	247.57				14,001.55
2009	45.52	770.53	246.97				13,762.50
2010	46.52	768.65	246.36				13,527.53
2011	47.52	766.78	245.76		662.91		13,296.57
2012	48.52	764.91	245.16				13,069.55
2013	49.52	763.04	244.57				12,846.42
2014	50.52	761.18	243.97				12,627.09
2015	51.52	759.33	243.37				12,411.50
2016	52.52	757.47	242.78				12,199.60
2017	53.52	755.63	242.19				11,991.31
2018	54.52	753.78	241.60		618.94		11,786.58
2019	55.52	751.95	241.01				11,585.35
2020	56.52	750.11	240.42				11,387.55
2021	57.52	748.28	239.83				11,193.13
2022	58.52	746.46	239.25				11,002.03
2023	59.52	744.64	238.67				10,814.19
2024	60.52	742.82	238.08				10,629.55
2025	61.52	741.01	237.50		577.89		10,448.07
2026	62.52	739.20	236.92				10,269.69
2027	63.52	737.40	236.35				10,094.36
2028	64.52	735.60	235.77				9,922.01
2029	65.52	733.81	235.19				9,752.61
2030	66.52	732.02	234.62				9,586.11
2031	67.52	730.23	234.05				9,422.44
2032	68.52	728.45	233.48		539.56		9,261.57
2033	69.52	726.67	232.91				9,103.44
2034	70.52	724.90	232.34				8,948.02
2035	71.52	723.13	231.77				8,795.25
2036	72.52	721.37	231.21				8,645.09
2037	73.52	719.61	230.64				8,497.49
2038	74.52	717.85	230.08				8,352.41
2039	75.52	716.10	229.52		503.77		8,209.81
2040	76.52	714.36	228.96				8,069.64
2041	77.52	712.61	228.40				7,931.86
2042	78.52	710.88	227.84				7,796.44
2043	79.52	709.14	227.29				7,663.33
2044	80.52	707.41	226.73				7,532.49
2045[b]	81.35	268.74	86.13				2,840.55
	Total:	$30,737.08	$9,851.63	$3,883.26	$3,613.07	$7,275.00	$447,755.50

[a] Fiscal Year Starts on the Expected Trial Date, July 19, 2004

[b] Fractional Year: July 19, 2044 - May 18, 2045

PRESENT VALUE OF THE COST OF FUTURE CARE BASED ON OPTION 1: $503,115.53

Table 19 – Option 2: Present Value of Future Care form the Expected Trial Date to the End of Life Expectancy

Year	Age	Therapeutic Evaluation	Incr. Future Medical Care	Incr. Future Medications	Home Adjustments	One-Time Costs	Supportive Care
2004[a]	40.52	780.00	250.00	1,944.00	710.00	7,275.00	28,100.00
2005	41.52	778.10	249.39	1,939.26			27,620.24
2006	42.52	776.20	248.78				27,148.68
2007	43.52	774.31	248.18				26,685.16
2008	44.52	772.42	247.57				26,229.56
2009	45.52	770.53	246.97				25,781.74
2010	46.52	768.65	246.36				25,341.57
2011	47.52	766.78	245.76		662.91		24,908.91
2012	48.52	764.91	245.16				24,483.63
2013	49.52	763.04	244.57				24,065.62
2014	50.52	761.18	243.97				23,654.74
2015	51.52	759.33	243.37				23,250.88
2016	52.52	757.47	242.78				22,853.91
2017	53.52	755.63	242.19				22,463.73
2018	54.52	753.78	241.60		618.94		22,080.20
2019	55.52	751.95	241.01				21,703.22
2020	56.52	750.11	240.42				21,332.68
2021	57.52	748.28	239.83				20,968.46
2022	58.52	746.46	239.25				20,610.46
2023	59.52	744.64	238.67				20,258.58
2024	60.52	742.82	238.08				19,912.70
2025	61.52	741.01	237.50		577.89		19,572.73
2026	62.52	739.20	236.92				19,238.56
2027	63.52	737.40	236.35				18,910.09
2028	64.52	735.60	235.77				18,587.24
2029	65.52	733.81	235.19				18,269.90
2030	66.52	732.02	234.62				17,957.97
2031	67.52	730.23	234.05				17,651.37
2032	68.52	728.45	233.48		539.56		17,350.01
2033	69.52	726.67	232.91				17,053.79
2034	70.52	724.90	232.34				16,762.62
2035	71.52	723.13	231.77				16,476.43
2036	72.52	721.37	231.21				16,195.13
2037	73.52	719.61	230.64				15,918.63
2038	74.52	717.85	230.08				15,646.84
2039	75.52	716.10	229.52		503.77		15,379.70
2040	76.52	714.36	228.96				15,117.12
2041	77.52	712.61	228.40				14,859.03
2042	78.52	710.88	227.84				14,605.33
2043	79.52	709.14	227.29				14,355.98
2044	80.52	707.41	226.73				14,110.87
2045[b]	81.35	268.74	86.13				5,321.30
Total:		$30,737.08	$9,851.63	$3,883.26	$3,613.07	$7,275.00	$838,795.30

[a] Fiscal Year Starts on the Expected Trial Date, July 19, 2004

[b] Fractional Year: July 19, 2044 - May 18, 2045

PRESENT VALUE OF THE COST OF FUTURE CARE BASED ON OPTION 1: $894,155.34

Table 20 – Option 3: Present Value of Future Care from the Expected Trial Date to the End of Life Expectancy

Year	Age	Therapeutic Evaluation	Incr. Future Medical Care	Incr. Future Medications	One-Time Costs	Supportive Care
2004[a]	40.52	380.00	250.00	1,944.00	7,275.00	63,875.00
2005	41.52	379.07	249.39	1,939.26		62,784.45
2006	42.52	378.15	248.78			61,712.52
2007	43.52	377.23	248.18			60,658.89
2008	44.52	376.31	247.57			59,623.25
2009	45.52	375.39	246.97			58,605.30
2010	46.52	374.47	246.36			57,604.72
2011	47.52	373.56	245.76			56,621.22
2012	48.52	372.65	245.16			55,654.52
2013	49.52	371.74	244.57			54,704.32
2014	50.52	370.83	243.97			53,770.34
2015	51.52	369.93	243.37			52,852.31
2016	52.52	369.03	242.78			51,949.96
2017	53.52	368.13	242.19			51,063.01
2018	54.52	367.23	241.60			50,191.20
2019	55.52	366.33	241.01			49,334.28
2020	56.52	365.44	240.42			48,491.98
2021	57.52	364.55	239.83			47,664.07
2022	58.52	363.66	239.25			46,850.29
2023	59.52	362.77	238.67			46,050.41
2024	60.52	361.89	238.08			45,264.18
2025	61.52	361.00	237.50			44,491.38
2026	62.52	360.12	236.92			43,731.77
2027	63.52	359.25	236.35			42,985.13
2028	64.52	358.37	235.77			42,251.24
2029	65.52	357.49	235.19			41,529.88
2030	66.52	356.62	234.62			40,820.83
2031	67.52	355.75	234.05			40,123.89
2032	68.52	354.89	233.48			39,438.85
2033	69.52	354.02	232.91			38,765.50
2034	70.52	353.16	232.34			38,103.65
2035	71.52	352.30	231.77			37,453.10
2036	72.52	351.44	231.21			36,813.66
2037	73.52	350.58	230.64			36,185.13
2038	74.52	349.72	230.08			35,567.34
2039	75.52	348.87	229.52			34,960.09
2040	76.52	348.02	228.96			34,363.21
2041	77.52	347.17	228.40			33,776.52
2042	78.52	346.32	227.84			33,199.85
2043	79.52	345.48	227.29			32,633.02
2044	80.52	344.64	226.73			32,075.87
2045[b]	81.35	130.93	86.13			12,096.02
	Total:	$14,974.47	$9,851.63	$3,883.26	$7,275.00	$1,906,692.17

[a] Fiscal Year Starts on the Expected Trial Date, July 19, 2004

[b] Fractional Year: July 19, 2044 - May 18, 2045

PRESENT VALUE OF THE COST OF FUTURE CARE BASED ON OPTION 3: $1,942,676.53

Summary of Costs

Present Value of the Total Cost of Future Care under Option 1	$ 664,708.01
Present Value of the Cost of Projected Therapeutic Evaluations	30,737.08
Present Value of the Cost of Future Medical Care	9,851.63
Present Value of the Cost of Future Medications	3,883.26
Present Value of the Cost of Home Adjustments	3,613.07
Present Value of the One-Time Costs	7,275.00
Present Value of the Cost of Supportive Care	447,755.50
Present Value of the Total Cost of Future Care under Option 2	$ 894,155.34
Present Value of the Cost of Projected Therapeutic Evaluations	30,737.08
Present Value of the Cost of Future Medical Care	9,851.63
Present Value of the Cost of Future Medications	3,883.26
Present Value of the Cost of Home Adjustments	3,613.07
Present Value of the One-Time Costs	7,275.00
Present Value of the Cost of Supportive Care	838,795.30
Present Value of the Total Cost of Future Care under Option 3	$1,942,676.53
Present Value of the Cost of Projected Therapeutic Evaluations	14,974.47
Present Value of the Cost of Future Medical Care	9,851.63
Present Value of the Cost of Future Medications	3,883.26
Present Value of the Cost of Home Adjustments	3,613.07
Present Value of the One-Time Costs	7,275.00
Present Value of the Cost of Supportive Care	1,906,692.17

IV. CONCLUDING THOUGHTS

As part of my internship, besides studying the different cases and building my own fictitious reports, I spent a fair amount of time on researching the issues about the net discount rate. Research, which allows an economic expert to stay on top of his/her field, constitutes a large portion of what forensic economists do. Knowing the available information in favor and against certain methods and techniques used in economic evaluation helps economists in defending their own or critiquing others' methods.

In addition to research, a small portion of my internship also required me to use my econometric skills. Among others, Robert T. Patton and David M. Nelson contend that personal consumption expenditure percentages used in economic damage calculations greatly depend on a person's level of income. Boudreaux disagrees with this view and states that personal consumption expenditure percentages are not significantly influenced by a person's level of income[xviii]. In order to determine whether personal consumption expenditures in economic damage calculations depend on a person's income or not, I had to acquire the necessary data from the Consumer Expenditure Survey series of the Bureau of Labor Statistics and run simple log-log regression models. While my

[xviii] For more information about the debate and the above-mentioned authors, one may refer to the following articles. "Estimating Personal Consumption Costs in Wrongful Death Cases" by Robert T. Patton and David M. Nelson, "Patton & Nelson Personal Consumption Revisited: Is Income Important?" by Kenneth J. Boudeaux, and "It's All About Income! A Response to 'Patton & Nelson Personal Consumption Revisited: Is Income Important?" by Michael R. Ruble, Robert T. Patton, and David M. Nelson.

calculations did not support Boudreaux, it must be admitted that I did not use the same methodology that Boudreaux did).

Starting my internship was very exciting, but psychologically challenging. It takes a while before a person can accept and learn to deal with the morbid reality of people's injuries and deaths. The fact that in most cases there is no face to face contact with the injured party makes it easier to deal with pictures, court depositions, medical reports, etc. that do more than enough justice to graphically illustrate the injuries that have been suffered by the plaintiffs.

Overall, I believe that I have learned a great deal during my internship. I have acquired knowledge about the process of evaluating certain economic damages, researched topics that extended my knowledge to new areas of economics, had the opportunity to apply knowledge I already acquired in class room settings, and was even fortunate enough to be able to observe a perpetuation video testimony. This internship experience is another one of those experiences or knowledge that I have gained from the program and see as possibly useful for me in the future.

APPENDICES

Appendix 1 – Calculation of the Real Discount Rate

Calculation of the Real Discount Rate (Nominal Interest Rate Less Inflation Rate)									
		Based on 3-Month T-Bill		Based on. 3-Yr T-Bond		Based on. 10-Yr T-Bond		Based on. 30-Yr T-Bond	
Year	Inflation Rate	Nominal Int. Rate	Real Int. Rate	Nominal Int. Rate	Real Int. Rate	Nominal Int. Rate	Real Int. Rate	Nominal Int. Rate	Real Int. Rate
1982	6.2%	10.7%	4.5%	12.9%	6.7%	13.0%	6.8%	12.8%	6.6%
1983	3.2%	8.6%	5.4%	10.5%	7.3%	11.1%	7.9%	11.2%	8.0%
1984	4.3%	9.6%	5.3%	11.9%	7.6%	12.4%	8.1%	12.4%	8.1%
1985	3.6%	7.5%	3.9%	9.6%	6.0%	10.6%	7.0%	10.8%	7.2%
1986	1.9%	6.0%	4.1%	7.1%	5.2%	7.7%	5.8%	7.8%	5.9%
1987	3.6%	5.8%	2.2%	7.7%	4.1%	7.7%	4.1%	8.4%	4.8%
1988	4.1%	6.7%	2.6%	8.3%	4.2%	8.9%	4.8%	9.0%	4.9%
1989	4.8%	8.1%	3.3%	8.6%	3.8%	8.5%	3.7%	8.5%	3.7%
1990	5.4%	7.5%	2.1%	8.3%	2.9%	8.6%	3.2%	8.6%	3.2%
1991	4.2%	5.4%	1.2%	6.8%	2.6%	7.9%	3.7%	8.1%	3.9%
1992	3.0%	3.5%	0.5%	5.3%	2.3%	7.0%	4.0%	7.7%	4.7%
1993	3.0%	3.0%	0.0%	4.4%	1.4%	5.9%	2.9%	6.6%	3.6%
1994	2.6%	4.3%	1.7%	6.3%	3.7%	7.1%	4.5%	7.4%	4.8%
1995	2.8%	5.5%	2.7%	6.3%	3.5%	6.6%	3.8%	6.9%	4.1%
1996	3.0%	5.0%	2.0%	6.0%	3.0%	6.4%	3.4%	6.7%	3.7%
1997	2.3%	5.1%	2.8%	6.1%	3.8%	6.4%	4.1%	7.3%	5.0%
1998	1.6%	4.8%	3.2%	5.1%	3.5%	5.3%	3.7%	5.6%	4.0%
1999	2.2%	4.7%	2.5%	5.5%	3.3%	5.7%	3.5%	5.9%	3.7%
2000	3.4%	5.9%	2.5%	6.2%	2.8%	6.0%	2.6%	5.9%	2.5%
2001	2.8%	3.5%	0.7%	4.1%	1.3%	5.0%	2.2%	5.5%	2.7%
5-Yr. Avg.	2.5%	4.8%	**2.3%**	5.4%	**2.9%**	5.7%	**3.2%**	6.0%	**3.6%**
10-Yr. Avg.	2.7%	4.5%	**1.9%**	5.5%	**2.9%**	6.1%	**3.5%**	6.6%	**3.9%**
15-Yr. Avg.	3.3%	5.3%	**2.0%**	6.3%	**3.1%**	6.9%	**3.6%**	7.2%	**4.0%**
20-Yr. Avg.	3.4%	6.1%	**2.7%**	7.4%	**4.0%**	7.9%	**4.5%**	8.2%	**4.8%**

Source: Tables B-63 and B-73 of the *Economic Report of the President, 2003*
Note: The figures are rounded to the nearest decimal.

Appendix 2 – Calculation of the Real Growth Rate

Calculation of the Real Growth Rate (Nominal % Change in ECI Less Inflation Rate)			
Year	Nominal % Change in ECI	Inflation Rate	Real % Change in ECI
1982	6.5%	6.2%	0.3%
1983	5.7%	3.2%	2.5%
1984	4.9%	4.3%	0.6%
1985	3.9%	3.6%	0.3%
1986	3.2%	1.9%	1.3%
1987	3.3%	3.6%	-0.3%
1988	4.8%	4.1%	0.7%
1989	4.8%	4.8%	0.0%
1990	4.6%	5.4%	-0.8%
1991	4.4%	4.2%	0.2%
1992	3.5%	3.0%	0.5%
1993	3.6%	3.0%	0.6%
1994	3.1%	2.6%	0.5%
1995	2.6%	2.8%	-0.2%
1996	3.1%	3.0%	0.1%
1997	3.4%	2.3%	1.1%
1998	3.5%	1.6%	1.9%
1999	3.4%	2.2%	1.2%
2000	4.4%	3.4%	1.0%
2001	4.2%	2.8%	1.4%
5-Yr. Avg.	3.8%	2.5%	**1.3%**
10-Yr. Avg.	3.5%	2.7%	**0.8%**
15-Yr. Avg.	3.8%	3.3%	**0.5%**
20-Yr. Avg.	4.0%	3.4%	**0.6%**

Source: Tables B-48 and B-63 of the *Economic Report of the President, 2003*
Note: The figures in the above tables are rounded to the nearest decimal.

Appendix 3 – Summary of Real Net Discount Rates

Real Net Discount Rate [(1 + d) / (1 + g)] - 1				
Year	3-Month T-Bill	3-Yr. T-Bond	10-Yr. T-Bond	30-Yr. T-Bond
5-Yr. Avg.	1.01%	1.60%	1.88%	2.23%
10-Yr. Avg.	1.04%	2.03%	2.64%	3.05%
15-Yr. Avg.	1.47%	2.54%	3.07%	3.41%
20-Yr. Avg.	2.00%	3.28%	3.82%	4.08%

Note: Information is based upon data from Appendix 1 and 2.

REFERENCES

AICPA Website. (2003) "Practice Area Survey – Personal Injury Calculation of Damages: Overview of Practice Area." *AICPA Consulting Services*. Available at: http://www.aicpa.org/members/div/mcs/persinj.htm.

Brighman, E.F. (1998) "Probability Distributions" in *Fundamentals of Financial Management*. Houston: The Dryden Press.

Brookshire, M. and Slesnick, F. (1999) "A 1999 Survey Study of Forensic Economists – Their Methods and Their Estimated of Forecast Variables." *Litigation Economics Digest*. 4(2), p. 65.

Bureau of Labor Statistics. (2003) "2001 Occupational Employment and Wage Estimates, Ohio." *Occupational Employment Statistics*. Available at: http://stats.bls.gov/oes/2001/oes_oh.htm.

Cheit, E. F. (1961) "Measuring Economic Loss Due to Death and Disability." *Injury and Recovery in the Course of Employment.* New York: Wiley, p. 76.

Ciecka, J., Donley, T., and Goldman, J. (1999-2000) "A Markow Process Model of Work-Life Expectancies Based on labor Market Activity in 1997-98." *Journal of Legal Economics*, 9(3), p. 33.

Council of Economic Advisors. (2003) "Table B-48 – Employment Cost Index, Private Industry, 1981-2002." *Economic Report of the President*. Available at: http://w3.access.gpo.gov/usbudget/fy2004/sheets/b48.xls.

Council of Economic Advisors. (2003) "Table B-63 – Changes in Special Consumer Price Indexes, 1960 – 2002." *Economic Report of the President*. Available at: http://w3.access.gpo.gov/usbudget/fy2004/sheets/b63.xls.

Council of Economic Advisors. (2003) "Table B-73 – Bond Yields and Interest Rates, 1929 - 2002." *Economic Report of the President*. Available at: http://w3.access.gpo.gov/usbudget/fy2004/sheets/b73.xls.

Find Law Website. (2003) "Wrongful Death Overview." *Find Law for the Public*. Available at: http://public.findlaw.com/wrongful_death/overview.html.

Gamber, E. N. and Sorensen R. L. (1993) "On Testing for the Stability of the Net Discount Rate." *Journal of Forensic Economics*. 7(1), pp. 69 – 79.

Horvath, P. A. and Sattler, E. L. (1997) "Calculating Net Discount Rates – It's Time To Recognize Structural Changes: A Comment and Extension." *Journal of Forensic Economics*. 10(3), pp. 327 – 332.

Ireland, T. R. (2000[a]) "Historical Comparisons Between Various Interest Rates and Growth Rates in the CPI, MCPI, Average Weekly Earnings and Total Compensation in the Employers Cost Index." *Journal of Legal Economics*. Spring/Summer 2000, pp. 25 – 45.

Ireland, T. R. (2000[b]) "Total Offsets in Forensic Economics: Legal Requirements, Data Comparisons, and Jury Comprehension." Working Paper. Available at: http:www.umsl.edu/~ireland/Offsets5.pdf.

Johnson W. D. and Gelles, G. M. (1996) "Calculating Net Discount Rates: It's Time To Recognize Structural Changes." *Journal of Forensic Economics*. 9(2), pp. 119 – 129.

National Institute on Disability and Rehabilitation Research Institute. (2003) "Chartbook on Work and Disability in the United States, 1998." Available at: http://www.infouse.com/disabilitydata/workdisability_glossary.html#disability.

Payne, J. E., Ewing, B. T., and Piette M. J. (2001) "Total Offset Method: Is it Appropriate? Evidence from ECI Data." *Journal of Legal Economics*. 2001 (Fall), pp. 1 – 13.

Sen, A., Gelles, G. M., and Johnson, W. D. (2000) "A Further Examination Regarding the Stability of the Net Discount Rate." *Journal of Forensic Economics*. 13(1), pp. 23 – 28.

U.S. Census Bureau. (2001) "Labor Force Status – Work Disability of Civilians 16 to 74 Years Old, by Educational Attainment and Sex, 2001." pp. 8 – 9.

U.S. Department of Health and Human Services. (2002) "United States Life Tables." *National Vital Statistics Reports*. 51(3), pp. 15, 17, 21.